

Network of Concerned Farmers

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23rd October, 2008

The Secretary
Senate Select Committee on Agricultural and Related Industries
P.O. Box 6100
Parliament House
CANBERRA ACT 2600



Re: Submission to Inquiry into food production in Australia

To the Senate Select Committee,

I would like to submit the following document "GM crops: Risks and Risk Management Required" as the basis for our submission. This document is currently a public document and electronic copies are available at http://www.non-gm-farmers.com/news_details.asp?ID=2921

The Network of Concerned Farmers believe that the introduction and support of GM crops will seriously undermine the viability of farmers producing food, the affordability and choice of consumers, and the sustainable impact on the environment.

GM crops are based on a pyramid selling arrangement where farmers pay more to the research and development sector who in turn pass profits to the GM patent owner. Currently, consumers and markets either reject GM crops or pay less for them, which will leave farmers in a funding vacuum of paying more but being paid less. The long-term aim is clearly to remove consumer choice, which can only result in a lack of choice and consumers paying more for food.

As a result, we urge the Senate to stop promoting GM crops which forces the research sectors to forge alliances with corporate companies pursuing a monopoly over the food chain. We recommend research and direct funding to non-GM plant breeding to position Australia at the forefront of non-GM biotechnology which has the ability to provide food that is viable for production for farmers, affordable to consumers and of sustainable impact on the environment.

I am willing to attend a public hearing to give evidence if required but will require reimbursement for travel expenses if the hearing is to be in Canberra. Thank you.

Regards,

Julie Newman
National Spokesperson for the Network of Concerned Farmers



GM Crops: Risks and Risk Management Required

GM Crops: Risks and Risk Management Required

This document is specifically prepared for policy makers and farmers to improve the understanding of the risks and risk management needed prior to any commercial GM crop being approved for release.



October, 2008

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Disclaimer: Comments regarding legal contracts are not intended to be legal advice. Confidential information, such as Monsanto's legal contracts, has been disclosed to assist in policy formation only.

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1.1 Executive Summary

Farmers will bear the brunt of the collision between industry with agendas to promote GM to increase profits, against consumers with genuine concerns wanting to avoid GM food. Farmers will also be faced with rapidly increasing costs and reduction of choice due to the change from “public good” plant breeding to “corporate profit” research and development.

GM canola is promoted as a benefit to farmers yet it can be proven to be a potential financial loss with little agronomic gain and far higher costs. The drive stems from multinational corporations, such as Monsanto, manipulating control of seed supplies and food supply. The research industry is trading knowledge and germplasm in exchange for funding and alliances with multinationals, enabling corporate companies to own patents over farmers' crops.

Competition is currently retained in the food supply because farmers have the choice to buy and sell from their business of choice. If plant breeders have agreements with Monsanto to add a Monsanto gene to all new varieties released, and farmers are required to purchase new seeds every year, all farmers could be locked into being a contract grower for a single supply chain. This would effectively remove all opposition, as no alternative supply chain will be able to access food. What will be the choice and price for food if controlled by a single supply chain?

With government and industry support, the GM industry has been promoting a path to market for GM and have permitted to introduce GM crops under self-management guidelines that reward the GM industry for the problems their product causes. Coexistence plans are based on accepting contamination rather than preventing it, which will remove the promised choice for consumers and farmers.

Increased costs and lower prices for produce due to market restrictions and lack of premiums will leave farmers in an unaffordable funding vacuum that is not sustainable.

Risk management is required and must not be denied.

Risk management and law reform must include:

- Independent performance trials to assess agronomic and economic claims of GM canola;
- Fair risk management to ensure non-GM farmers are not liable for the economic loss caused by GM crops;
- A requirement that a minimum limit of contamination is proven (eg. 90%) prior to deduction of royalties for GM contamination;
- Investigation into any anti-competitive practises adopted by the seed industry;
- A full investigation to the behind-the-scenes corporate alliances and conditions formed with public plant breeders;
- No restriction to be imposed on farmers or gardeners rights to replant non-GM seeds and no restriction of new varieties available in an alternate non-GM form (without an unwanted GM gene).
- Strict liability legislation to ensure the GM Company is liable for containing their product and any economic loss caused by their inability to do so.
- Independent health testing to allay consumer fears or to identify and address any problems found.
- Support for improved GM labelling allowing consumers a choice to avoid GM if desired; and
- Compulsory public registration of GM growers.

It is not unreasonable to insist on the truth and fair risk management to ensure those not wishing to take the risk associated with GM crops are not adversely affected by them.

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1.2 Brief quotes for an overview

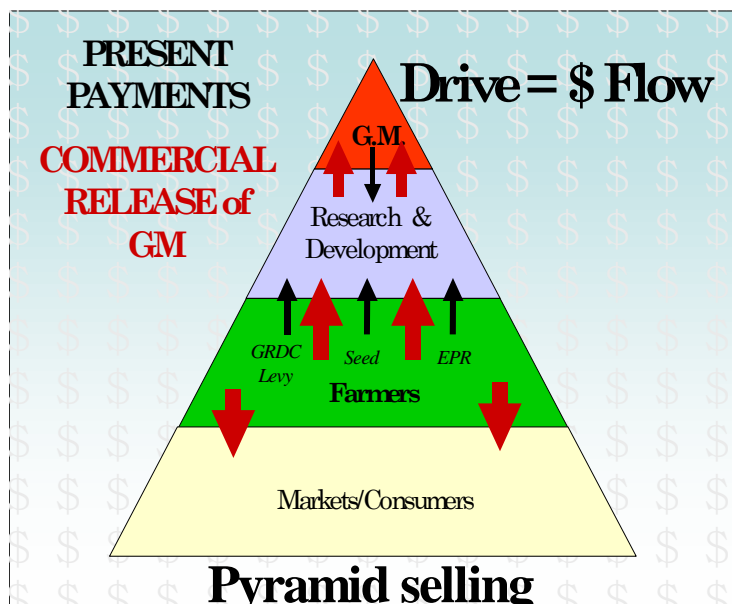
- *What you are seeing is not just a consolidation of seed companies, it's really a consolidation of the entire food chain". R.Fraley, co-president of Monsanto's agricultural sector.*
- At an industry biotech conference in January 1999, a representative from Arthur Anderson Consulting Group revealed that their company had helped Monsanto create a strategy to own the patents for 100 percent of all commercial seeds grown and to ensure natural seeds were virtually extinct. The tactics involved included influencing governments in order to get GM foods and crops grown before resistance prevented the move.
- The life science benefits of *"lowering crop production costs, increasing productivity, providing a safer environment and a more sustainable system for ensuring global food, feed and fiber security"* have been constantly promoted to gain government support. However it was reported by ISAAA that this was considered an *"inappropriate strategy for the future"* with spin-offs and consolidation mergers being promoted as an alternative GM company strategy since late 1990.
- EC Commission paper based on interviews with Monsanto managers: *"Monsanto has created a new structure for developing and marketing its biotechnology based products. It has both formed multiple agreements and partnerships and acquired seed companies and then pursued a strategy of licensing its technology to farmers..."*
- *"Although it is promoted by biotech companies that GM is required to "feed the world", corporate companies are driven by the requirement to make money, not to provide a service to the community."* Morgan Stanley and Merrill Lynch.
- CSIRO *"Yes, we do find that it is often the best strategy to get into bed with these companies."*
- Governments policy aimed *"To attract essential foreign investment and development partners"* ... Governments allowed a path to market and allowed the GM industry self-management.
- Federal Minister for Agriculture, Warren Truss, 6.3.03: *"Bans are "stupid" "...you can't seek to attract biotechnology investment, and then ban the use of the products."*
- USDA report: *"He said that the seed companies had farmers 'over a barrel' and that in his opinion, seed companies should offer all new varieties and genetics with and without Bt so that farmers would always be able to have a choice. Other farmer panelists made this same point during the day, raising one of the key issues that surfaced at the meeting..."*
- Participant at course by GM Public Relations expert. *"At the end of Irvine's seminar, we split into groups for exercises. One was challenged to "assume the position of moral leadership...The stratagem is to promote not with facts, said Irvine, but values."... "Another group was charged with finding ways to discredit activists."*
- In Monsanto's October 2008 Financial statement for investors, Monsanto used the example of current pricing for Yieldgard triple stacked trait. Monsanto charges 100% of the replacement value for costs farmers would have incurred for substitute insect and weed control (US \$11-19/acre) plus an additional \$18-30/acre for estimated yield advantage and indirect benefits such as convenience and peace of mind.

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- United States Department of Agriculture: “*GE crops available for commercial use do not increase the yield potential of a variety. In fact, yield may even decrease if the varieties used to carry the herbicide-tolerant or insect-resistant genes are not the highest yielding cultivars...*”
- Landmark agronomists “*...Roundup Ready canola is not the cure for all weed problems. One paddock of Roundup Ready canola ...had a high radish population ...With no residual in the Roundup Ready system there was nothing to stop the subsequent radish germination’s...*”
- Victorian GM canola grower “*Its not the miracle cure-all that I thought it would be,*” he said. Mr Milllear said Roundup could only be sprayed on GM canola crop between the two leaf and six leaf stages of plant growth. “*If you spray too late, you may do the canola some harm.*”
- 2008: “*Executive director of the Australian Oilseeds Federation Rosemary Richards says that growers wanting to market their grain as non-GM must ensure the status of their seed prior to planting. Also, the grower will need to demonstrate traceability through the supply chain. This could involve procedures such as vendor declaration, monitoring contractors and delivery to storage in compliance with customer requirements.*”
- Dale Adolphe of the Canadian Seed Growers Association “*It’s a hell of a thing to say that the way we win is don’t give the consumer a choice, but that might be it.*”
- **Extract from Monsanto’s legal contract with GM grower: “MONSANTO’S LIABILITY TO SELLER FOR ANY AND ALL LOSSES, INJURY OR DAMAGES ARISING DIRECTLY OR INDIRECTLY FROM THE USE OR HANDLING OF SEED CONTAINING ANY MONSANTO TECHNOLOGIES (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, PRODUCT LIABILITY, STRICT LIABILITY, TORT, OR OTHERWISE) IS LIMITED TO THE PRICE PAID BY THE GROWER FOR THE QUANTITY OF THE SEED INVOLVED OR, AT THE ELECTION OF MONSANTO OR THE SEED SELLER, THE REPLACEMENT OF THE SEED.”**

- Farmers pay well for plant breeding now through compulsory GRDC levies, high seed payments and an end point royalty system of payment on produce grown from new varieties. The introduction of GM crops can only increase costs but these costs can not be passed to consumers, as markets are either refusing to buy GM produce or paying less for them. Farmers will be in an unsustainable funding vacuum. The GM industry is trying to remove the choice for consumers and farmers to ensure the increase in costs is passed to consumers and farmers.

Farmers will be in an unsustainable funding vacuum while the GM battle continues.



Full quotes and references are available within this document

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1.3 Risk Management Survey

In 2004, the Network of Concerned Farmers analysed 318 returned random surveys (mostly from the Newdegate Field Day, 2004) detailing attitudes to risk management required for GM canola. *

Results were almost **unanimous** (unless specified).

Results:

Those wanting to grow GM canola, would only do so if it were **proven more profitable**.

Those growing conventional non-GM crops, are **NOT** prepared to mix their non-GM canola with GM canola if it returns a lower price or meets market rejection.

The principle of responsibility for coexistence of GM crops with non-GM crops should be based on **the GM grower to keep GM crops contained** not on the non-GM grower to keep GM contamination out (as proposed under current protocols).

The trade definitions in the coexistence plans **MUST comply with law**. (Contamination is accepted because it is impossible to control but law defines "Non-GM" or "GM-free" as no GM.)

If non-GM farmers must guarantee no contamination on delivery, Non-GM farmers should **NOT** allow any contamination of GM in the seed they purchase.

Prior to accepting coexistence plans, there should be proof:

- of widespread education and acceptance of all participants;
- that no sector of industry is faced with unmanageable problems; and
- That no sector of industry is faced with additional costs and liabilities without approval from that sector of industry.

If GM canola is introduced and contamination or loss of GM-free status causes economic loss to others this loss must not be carried by the Non-GM grower. They **MUST** be compensated by **the GM grower, the owner of the patent and the government who approved GM release**. Majority result was a combination of all three.

The majority of survey participants supported a GM liability legislation regime to ensure farmers are protected under law.

There **MUST be risk management** to ensure that if an unwanted trace of GM contamination is detected in a non-GM truckload of canola, a company such as Monsanto **CAN NOT** deduct their patent user fee from the non-GM growers income.

Farmer and government funded research and development **MUST NOT** withhold non-GM varieties from farmers. Newly developed non-GM crop varieties may be locked in by exclusive researcher "deals" with Monsanto to allow them to add their patented GM Roundup-Ready gene to these non-GM varieties. If so, the same variety must be available in the original non-GM form to allow farmers to replant their own seed.

* Survey and photo can be viewed at: http://www.non-gm-farmers.com/news_details.asp?ID=1578

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1.4 Introduction

The GM issue is multifaceted and the complexity of the debate needs to be understood to formulate good policies. This report is a culmination of almost a decade's extensive research on this issue. It has been difficult for the public, particularly farmers to understand the mixed messages regarding GM crops and foods. While GM is constantly being promoted as a saviour and those that oppose it are targets for ridicule, it is difficult for many to understand why there is a problem.

A GM crop is declared "GM" when a recombinant DNA technique is used to add one to three genes to the thousands of genes in the DNA of a plant. Almost 100% of GM crops commercially grown are limited to soy, corn, cotton or canola as these crops mainly escape human consumption. The least popular key crop is canola with almost all of the GM canola grown in Canada.

Between 70-80% of the global GM crops are "Roundup Ready ®" which involves inserting a soil bacteria to the DNA of a plant to make the plant resistant to the knockdown herbicide, glyphosate (Monsanto's brand name for glyphosate is Roundup®). Considering our weeds are naturally developing resistance to glyphosate through plant selection from overuse of glyphosate, it is not unreasonable to conclude that this trait can be produced easily by non-GM selective plant breeding.

Many of the traits promised for GM is actually being achieved by non-GM means. For example, the improved consumer traits of high oleic and low linolenic canola has been promoted as a benefit of GM but is conventional non-GM plant breeding.

Part of the future attraction of GM crops is the ability to manipulate stages of growth (flowering etc) through chemical application. Control to this degree can only add additional costs to farmers.

A recent global initiative involving 4,000 international scientists released an intensive joint study report on behalf of The International Assessment of Agricultural Science and Technology for Development (IAASTD). They failed to recognise the validity of benefits claims for GM crops and instead, found serious concerns.

The key concerns recognised were:

- *"Higher level drivers of biotechnology R&D, such as IPR frameworks, determine what products become available. While this attracts investment in agriculture, it can also concentrate ownership of agricultural resources."*
- *"...patents may drive up costs, restrict experimentation by the individual farmer or public researcher while also potentially undermining local practices that enhance food security and economic sustainability. In this regard, there is particular concern about present IPR instruments eventually inhibiting seed-saving, exchange, sale and access to proprietary materials necessary for the independent research community to conduct analyses and long term experimentation on impacts."*
- *"Farmers face new liabilities: GM farmers may become liable for adventitious presence if it causes loss of market certification and income to neighbouring organic farmers, and conventional farmers may become liable to GM seed producers if transgenes are detected in their crops."*¹

Few understood why this opposed the constant stream of GM promotion. This paper helps to explain these issues in more detail and provides evidence that legislation is inadequate in addressing consumer and farmer choice and inadequate in protecting farmers from predatory costs. The paper also explains the reason why risk management is being avoided by governments and opposed by the research sector while a path to market for GM under self- regulation is promoted.

¹ Ref: Executive Summary of the Synthesis Report of the International Assessment of Agricultural Science and Technology for Development (IAASTD) http://www.agassessment.org/docs/SR_Exec_Sum_English.pdf

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1.5 GM company objectives

Patents of living DNA were introduced in 1980, when in a five-to-four decision, the US Supreme Court extended patent law to cover “live human-made micro-organisms”. Living organisms had historically been excluded from patent laws, as life forms were considered natural, not man-made. In 1980 a Supreme Court case *Diamond v Chakrabarty* narrowly decided that a strain of bacteria that had been modified to insert genes was patentable. In 1988, a Harvard University biologist was granted a patent for a mouse used for cancer research and it became the first animal to be considered an invention by the U.S. Patent and Trademark Office. Corporate patent attorneys lobbied the Patent office that these "products of nature" are patentable once they have been isolated to produce a form not found outside of a laboratory.

Patent ability of living, self replicating organisms triggered a global gold rush of entrepreneurial scientists keen to stake an exclusive rights claim in different natural gene sequences. While interest was sparked to patent genes from around the globe, international unity was required to recognise the patents.

Monsanto led the hunt and has become the world leader in the genetic modification of seeds, and, according to the U.S. Department of Agriculture, now owns 674 biotechnology patents.

At an industry biotech conference in January 1999, a representative from Arthur Anderson Consulting Group revealed that their company had helped Monsanto create a strategy to own the patents for 100 percent of all commercial seeds grown and to ensure natural seeds were virtually extinct. The tactics involved included influencing governments in order to get GM foods and crops grown before resistance prevented the move.²

Although it is promoted by biotech companies that GM is required to “feed the world”, corporate companies are driven by the requirement to make money, not to provide a service to the community. Monsanto’s share price increases when the price of their products increases showing the ability to profit regardless of the commodity price environment.³

The life science benefits of “lowering crop production costs, increasing productivity, providing a safer environment and a more sustainable system for ensuring global food, feed and fiber security” have been constantly promoted to gain government and public support. However the peak reporting body for the GM industry, the International Service for the Acquisition of Agri-biotech Applications (ISAAA), has admitted that this was considered an “inappropriate strategy for the future” with spin-offs and consolidation mergers being promoted as an alternative strategy since late 1990.⁴

Monsanto has progressively purchased seed companies. In 2005, Monsanto bought the world’s largest vegetable seed company, Semini’s for \$1.4 billion, giving it ownership of 40% of the U.S. vegetable seed market and 20% of the world market. Soon after, it purchased De Ruiter Seeds Co, the largest vegetable Seed

² “Seeds of deception” By Jeffrey Smith. Introduction:
<http://www.seedsofdeception.com/utility/showArticle/?objectID=52>

³ Morgan Stanley and Merrill Lynch.
<http://www.streetinsider.com/Analyst+Comments/Monsanto+%28MON%29:+Morgan+Stanley+and+Merrill+Lynch+out+positive+on+MON+this+morning/3921544.html>

“Monsanto (MON): Morgan Stanley and Merrill Lynch out positive on MON this morning”

⁴ ISAAA "Global Review of Commercialized Transgenic Crops: 2001" section 5, page 22. "Global R&D expenditures in Crop Biotechnology and future GM crop markets." *"In 1995 the private sector viewed crop biotechnology, prior to the commercialization of the first GM crops in 1996, as an important new opportunity for markets that would contribute to lowering crop production costs, increasing productivity, provide a safer environment and a more sustainable system for ensuring global food, feed and fiber security. Later in the 1990's the private sector judged the life science concept to be an inappropriate strategy for the future. There followed a series of spin-offs and mergers culminating in consolidation that resulted in six transnational North American and European based crop protection/biotechnology entities."*

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Company in the Netherlands for \$850 million.⁵

Although Monsanto has suffered financially from the controversy surrounding the GM sector, they continue to invest heavily in expansion of the seed industry while making good profits. The largest allocation of Monsanto's \$2.8b operating cash for 2008 fiscal year was spent in acquisitions and technology collaborations (37%) followed by capital spending (33%). Since 2007, there has been an 80% profit growth to \$3.9b for Monsanto's seeds and genomics sector, and a further rise of 20% in 2009 is predicted.

The R&D as a percent of sales is only 9% which includes expensive in-process research and development expenses related to the acquisition of the DeRuiter vegetable seeds business. Between 2007 and the end of 2012, Monsanto's business is predicted to double the gross profit potential of its business which includes a 2008 acquisition of Semillas Cristiani Burkard, a leading seed company in Central America. They continue to aim to apply their GM breeding technology to the germplasm of research and development companies.⁶

Monsanto's monopoly over the seed industry is also gained by its numerous alliances with the research and development sector. According to a European Commission paper based on interviews with Monsanto managers:⁷

“Monsanto has created a new structure for developing and marketing its biotechnology based products. It has both formed multiple agreements and partnerships and acquired seed companies and then pursued a strategy of licensing its technology to farmers...”

According to the report, acquisition has become increasingly important to Monsanto's innovation and marketing strategy. The logic here is that simply selling the technology is not enough; the seeds also have to be excellent and appealing to farmers. *“Integration between all parts of the business is necessary and agricultural biotechnology needs to be marketed as a package.”* Monsanto managers quote *“...I think we have interests in two different Soya bean companies in the US, but we have licensed the technology to literally hundreds. I think the number is well over 300 this year, because there are many.”*

Monsanto managers expressed concern about the hostility of farmers *“reacting negatively to perceived attempts to pressure them into buying GM crops.”* Dominance of the seed market has fuelled farmer antagonism toward the company. An USDA report quoting farmer complaints was cited as an example. Interview with farmer Leon Corzine: “

*He said that the seed companies had farmers ‘over a barrel’ and that in his opinion, seed companies should offer all new varieties and genetics with and without Bt so that farmers would always be able to have a choice. Other farmer panelists made this same point during the day, raising one of the key issues that surfaced at the meeting...”*⁷

⁵ <http://www.seedalliance.org/index.php?page=SeminisMonsanto>

⁶ Monsanto's October 2008 Financial statement for investors
http://www.monsanto.com/pdf/investors/2008/10_07_08.pdf

⁷ Policy influences on Technology: Chemicals, Biotechnology and Seeds TSER program, European Commission. By Joanna Chataway (Centre for Technology Strategy. UK) and Joyce Tait (Scottish Universities Policy Research and Advice Network UK). October 2000. Based on interviews with Monsanto managers.

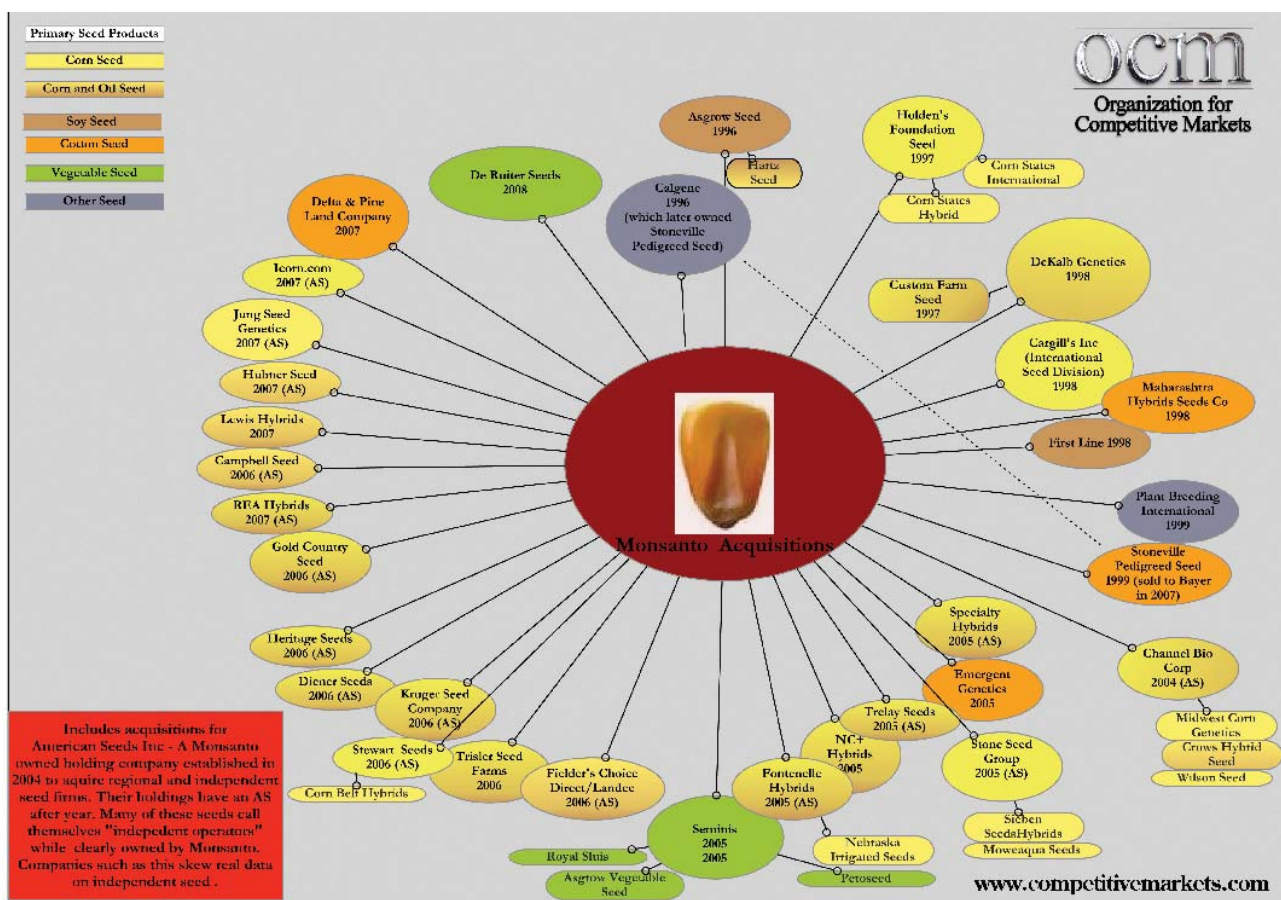
⁷ Policy influences on Technology: Chemicals, Biotechnology and Seeds TSER program, European Commission. By Joanna Chataway (Centre for Technology Strategy. UK) and Joyce Tait (Scottish Universities Policy Research and Advice Network UK). October 2000. Based on interviews with Monsanto managers.

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Mergers have been encouraged by the sharing of assets within and between the agricultural biotechnology and seed industries (Graff, Rauser and Small 2003).⁸

It is no wonder profits are increasing when the method of pricing is analysed. Monsanto pricing is based on recovering more than the cost of non-GM alternatives. In Monsanto's October 2008 Financial statement for investors, Monsanto used the example of current pricing for Yieldgard triple stacked trait. Monsanto charges 100% of the replacement value for costs farmers would have incurred for substitute insect and weed control (US\$11-19/acre) plus an additional \$18-30/acre for estimated yield advantage and indirect benefits such as convenience and peace of mind. This is calculated by Monsanto based on their own conclusions of 27.75%-35.3% of a combination of estimated yield advantage (US\$60-\$80/acre) and indirect benefits such as convenience and peace of mind based on farmer surveys (US\$5.00/acre)⁹

The illustration below shows a recent USA analysis of Monsanto's seed company acquisitions.⁸



⁸ Organization for Competitive Markets

http://www.competitivemarkets.com/index.php?option=com_docman&task=cat_view&gid=27&Itemid=32

⁹ http://www.monsanto.com/pdf/investors/2008/10_07_08.pdf Monsanto's October 2008 Financial statement for investors

⁸ Organization for Competitive Markets

http://www.competitivemarkets.com/index.php?option=com_docman&task=cat_view&gid=27&Itemid=32

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It has been recognised internationally that multinationals are causing global food problems rather than resolving them. The opening remarks of the President of the United Nations General Assembly Miguel d'Escoto Brockmann, addressing world leaders at the "Millennium Development Goals" included:

*"The essential purpose of food, which is to nourish people, has been subordinated to the economic aims of a handful of multinational corporations that monopolise all aspects of food production, from seeds to major distribution chains, and they have been the prime beneficiaries of the world crisis."*¹⁰

What you are seeing is not just a consolidation of seed companies, it's really a consolidation of the entire food chain". R.Fraley, Co-president of Monsanto's agricultural sector.¹¹

Monsanto has a relatively low profile in Australia, but Nufarm, the sole distributor of Monsanto's Roundup® chemical is very active. In 2006, Nufarm, purchased Dovuro Seeds (Australia's main canola seed company) and shares in Nutrihealth Pty Ltd, (producers of consumer preferred canola varieties) for around \$34million. The acquisitions involved all intellectual property relating to both business' canola breeding programmes. Existing interests included Nugrain Pty Ltd, Ag-Seed Research Pty Ltd and Access Genetics Pty Ltd giving access to breeding and development of new canola, wheat, oats and field pea varieties.¹²

¹⁰ Opening remarks by H. E. M. Miguel d'Escoto Brockmann, President of the United Nations General Assembly at the High-level Event on the Millennium Development Goals. 25 September 2008, United Nations, New York
http://www.organicconsumers.org/articles/article_14843.cfm

¹¹ Fraley R. (co-president of Monsanto's agricultural sector) 1996, in the Farm Journal. Quoted in: Flint J. (1998) Agricultural industry giants moving towards genetic monopolism. Telepolis, Heise Online, www01.ix.de/tp/english/inhalt/co/2385/1.html <http://www.corporatewatch.org/?lid=207> from Consolidating control: Plant Variety Rights, Genes and Seeds, Richard Hindmarsh pg 12. http://www.biotech-info.net/consolidating_control.pdf

¹² Nufarm press release 26 April, 2006 Nufarm expands seed interests
[http://www.nufarm.com/web/nufarmcom/nufarmcomnewslinks.nsf/.SubSectionsreturn/Nufarmexpandsseedinterests/\\$file/2006-04Seeds.pdf](http://www.nufarm.com/web/nufarmcom/nufarmcomnewslinks.nsf/.SubSectionsreturn/Nufarmexpandsseedinterests/$file/2006-04Seeds.pdf)

Further references for Section 1.5:

- 2008-03-26 "Seeds and Power: Governing Plant Genetic Resources for Food and Agriculture" *Paper presented at the annual meeting of the ISA's 49th ANNUAL CONVENTION, BRIDGING MULTIPLE DIVIDES, Hilton San Francisco, SAN FRANCISCO, CA, USA* <Not Available>. 2008-09-12 from http://www.allacademic.com/meta/p251027_index.html
- Seeds and Power: Governing Plant Genetic Resources for Food and Agriculture. Allacademic research http://www.allacademic.com//meta/p_mla_apa_research_citation/2/5/1/0/2/p251027_index.html?type=info&PHPS ESSID=2a59837b80e6f33c810964fff582fb35
- International Expert Group on Biotechnology, Innovation and Intellectual Property <http://www.theinnovationpartnership.org/en/ieg/>
http://www.theinnovationpartnership.org/ieg/documents/cases/TIP_Innovation_Metrics_E.pdf

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1.6 GM public relations strategy

It has been incorrectly argued that activists instigated restrictive and expensive regulation of GM. In late 1986, Monsanto representatives visited Vice President George Bush at the White House to regulate their new genetically modified food technology. They were confident that government approval would reassure the public that this controversial food was safe as they could foresee that their major investments would fail if consumers rejected the product. Monsanto got the regulations that favoured their technology that they wanted. This "generous policy of self-policing" caused unrest within the United States Food and Drug Administration (USFDA).

"In this area, the U.S. government agencies have done exactly what big agribusiness has asked them to do and told them to do," said Dr. Henry Miller, a senior research fellow at the Hoover Institution, who was responsible for biotechnology issues at the Food and Drug Administration from 1979 to 1994.

During the late 1980's, the President and Chief Operating Officer at Monsanto, Earle Harbison Jr., stated he expected to win support in at least a decade but Monsanto had underestimated the concern surrounding their technology. The management that followed were confident that the technology concerns were allayed and started to *"erase regulatory barriers and shove past the naysayers."* which inflamed the opponents of GM even more. Scientists themselves were debating the risks regarding transferring genes between species but while scientists became more accepting, the public did not.

Monsanto started an intensive campaign to win support of farmers and environmentalists until regulation was approved. Monsanto's strategy document was developed and lobby for political support was recognised as essential to gain technology endorsement. The document suggested engaging elected officials and regulators around the world,

"creating support for biotechnology at the highest U.S. policy levels," The document explained how to deal with opponents, *"Active outreach will encourage public interest, consumer and environmental groups to develop supportive positions on biotechnology, and serve as regular advisers to Monsanto."*

Former Monsanto executives recognised that bioengineering raised concerns about possible allergens, unknown toxins or environmental effects. Scientists at the Food and Drug Administration (FDA) concluded that there was *"ample scientific justification"* to review GM foods more thoroughly with toxicologists declaring *"The possibility of unexpected, accidental changes in genetically engineered plants justifies a limited traditional toxicological study."* Concerns were ignored and GM food regulation only required testing to be done by the company that developed them. USA also denied labelling to allow consumer choice.

Consumers objected and started rejecting GM foods causing market concerns causing trade negotiations conflict between US and EU in particular. Exports of GM food were seriously affected causing economic problems for US farmers requiring increased government subsidies.

Since then, a similar legislative push has occurred globally. As time passes, those with concerns have had little but confirmation of their concerns including health, environment, economic and moral objection to corporate control and "tinkering with nature". The Former Head of Biotechnology Strategy from Monsanto admitted that they had "lost the battle for the public trust".

The GM industry started spending millions of dollars on advertising, campaigning and promotion of their global benefits of GM to countries around the world.¹³

¹³ Key reference for page: Biotechnology food: From the lab to a debacle. New York Times
<http://www.thecampaign.org/newsupdates/jan01s.htm>

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The life science benefits of lowering costs, increasing productivity, providing a safer environment and a more sustainable system for ensuring global food security” was promoted internationally to obtain influential policy support through organisations such as the World Trade Organisation and the OECD. This early support from governments stimulated policies driven from the top down in governments and farm organisations.

The Public Relations campaign to gain Australian government support has been very well funded and organised. To gain farmer support, a representative from the GM industry through Avcare (representing chemical companies), Paula Fitzgerald from Agrifood Awareness, was introduced as the key policy adviser to farm lobby groups.

After intensive lobbying by the GM industry, GM canola was first approved by the Australian Federal government in late 2003. The varieties approved were both herbicide tolerant with Monsanto’s Roundup Ready variety being modified to resist glyphosate, and Bayer Cropscience’s Invigor variety was modified to resist glufosinate ammonium.¹⁴

Although approved by the Federal government based on assessment of health and environment, State governments denied approval under the GM-free areas Act as they had the legislated responsibility to assess economic concerns. All canola-growing states announced a GM-free zone based on economic concerns in West Australia (22.3.04), South Australia (26.3.04), Victoria (26.3.04) and New South Wales (1.4.04). This was a major shock to the GM industry and its supporters.

Controversial American public relations expert, Ross Irvine, reported an analysis of the Australian public relations campaign for GM crops:

"Australia’s agricultural biotechnology industry did everything right, according to traditional public relations practices. And, it did so successfully. It obtained editorial support from major newspapers; governments anointed biotechnology as a vital key to the future; credible scientific research proclaimed the safety of biotech crops and foods; leading farm groups staunchly explained and defended the need for biotechnology; and, an independent report documented that international marketing of Australia farm products would not be harmed by growing biotech crops."

*"The biotech industry followed a traditional, command-and-control, centralised PR approach. **Opinion leaders were targeted and brought inside.** Significant stakeholder organisations and spokesmen were made available to the media. Great efforts were made to enhance understanding of the science and technology of biotechnology. Specialists were appointed to deal with specific issues. Scientists and academics brought authority and credibility to the industry’s position. The biotechnology focused on explaining its position and its technology."*

"Perhaps the biggest PR mistake was made not by the Australia’s biotech industry but by other industries. Other businesses failed to see that anti-biotech activism is used to promote a wide range of anti-business values." 15

¹⁴ Office of the Gene Technology Regulator (OGTR). <http://www.ogtr.gov.au/>

¹⁵ Ross S. Irvine is President of [ePublic Relations Ltd](http://www.epublicrelations.ca/) and Public Relations Management Ltd. "Australian state governments stomp biotech industry: Traditional PR fails (2004)" Ross Irvine. <http://www.epublicrelations.ca/>

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The Institute of Public Affairs¹⁶ (a public relations firm for large business), arranged an Australian tour for Ross Irvine. The P.R. campaign was strengthened to involve industry and focus on the dishonest strategy of viciously attacking anyone that publicly expresses concerns.

Journalist, Katherine Wilson attended one of Ross Irvine's seminars, which was attended by a "Who's who of powerful industry and government flacks". This included Ministerial advisers, Avcare, Victorian Farmers Federation, Department of Primary Industries, Bayer, Graincorp, Dairy Australia and Nufarm, the distributor of Monsanto's Herbicides). The tactic was to be deceptive regarding promotion and to target individuals opposing the GM industry.

"At the end of Irvine's seminar, we split into groups for exercises. One was challenged to "assume the position of moral leadership", a lesson from Irvine's work with the biotech (GM crop) industry. When the GM crop industry faced health, environmental, economic, legal and social challenges, it mounted a higher moral ground campaign: GM crops will save third world children from malnutrition and starvation. The stratagem is to promote not with facts, said Irvine, but values."... "Another group was charged with finding ways to discredit activists." ¹⁷

What followed has been a constant and vicious attack by individuals from across industry on any person that expresses any concern regarding GM technology. Detail that could settle the debate has been avoided and a constant rhetoric of the "high moral ground" of global goodness has been promoted.

The attack on opposition also extends to opposition products. The most popular non-GM canola grown in Australia is Triazine Tolerant (TT) canola which is resistant to the herbicide Atrazine. Those promoting GM canola, have mounted an attack on the safety of triazine (used on non-GM canola) in order to discredit non-GM canola and effectively remove the opposition product. It has been misleadingly implied that atrazine has been banned in EU but Atrazine has only been moved from schedule list of approved active constituents for plant protection for the European Union due to concerns that atrazine levels have increased to near maximum safe levels in drinking water. Part of this reason for high levels is that landowners have been tipping neat Atrazine into waterways to control waterweeds and the only way they can prevent it is to ban its use temporarily till levels reduce. The Australian APVMA have recently undertaken an extensive atrazine review and found Atrazine to be safe for use in Australian conditions but banned for use in waterlogged conditions or where catchment areas are used for domestic water use." It is rare for water to be collected for the Australian public from areas that have been used for Atrazine but Tasmania is one area that has had restrictions imposed.

A football team mentality has been promoted among farmers and politicians where the "in" crowd is led to support GM. However, providing truthful information and risk management should not be viewed as a threat to power or an attempt to prove any individual wrong. The GM issue needs to be taken seriously.

¹⁶ Institute of Public Affairs <http://www.ipa.org.au/>

¹⁷ Katherine Wilson. Overland 183, pp.13-17
http://www.overlandexpress.org/183_wilson.html

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1.7 Research sector attraction

The drive behind GM crops by government, researchers and the GM industry is the need to attract corporate investment and alliances into plant breeding institutes and for investors (including government) to capitalise on their investments.

Until the late 19th century, crop variety improvements were achieved by farmer selection of natural mutations. Gradually governments funded the education and training of researchers, the research and the development of plant breeding and findings were promoted and shared internationally.¹⁸

When plant breeding was publicly funded, intellectual property and plant breeding techniques were traded freely internationally. In the 1986-94 Uruguay Round of the World Trade Organisation Agreements, intellectual property rules were introduced to encourage investment in research and development by promoting the patenting and ownership of intellectual property related to plant breeding.

The Trade Related Intellectual Property (TRIPs) Agreement¹⁹ was accepted internationally allowing commercialising and ownership avenues for plant breeding and its techniques. The International Union for the Protection of New Varieties of Plants (UPOV) agreement²⁰ was accepted internationally, legislating the avenue of royalty collection.

Governments changed their objectives in R&D funding to commercialise and capitalise on research and development.

Monsanto, a multinational chemical and biotechnology company, quickly secured many of the patents necessary for both GM and non-GM plant breeding. Traditional, poorly funded public plant breeding institutes were unable to afford to pay the costs involved in producing varieties using patented technologies or securing patents or designing new technologies.

Monsanto offered an alternative to plant breeders, to sign confidential contracts to form alliances with Monsanto in order to use patented property free of charge.²¹

Australia's largest biotech company, CSIRO will not reveal the detail of their confidential agreements but as early as 1992, the former head of CSIRO, John Stocker, was quoted on ABC radio as saying:

"Yes, we do find that it is often the best strategy to get into bed with these companies."

¹⁸ Reference: "The Global Need for Plant Breeding Capacity: What roles for the public and private sector?" Michael Morris, Greg Edmeades & Eija Pehu. HortScience Vol. 41 (1) February 2006

¹⁹ Trade Related Intellectual Property Agreement. http://www.wto.org/english/tratop_e/trips_e/trips_e.htm

²⁰ International Union for the Protection of New Varieties of Plants (UPOV) http://www.upov.org/index_en.html

²¹ Personal interviews with CSIRO during a 2005 GM course.

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CSIRO has followed the public relations campaign to promote GM by promoting industry involvement and to reject farmers concerns. In his inaugural speech (July 2005) as the president of the Australian Academy of Science, Dr. Jim Peacock from CSIRO urged the canola industry to be "*intimately involved*" in trying to overturn moratoriums imposed by the states and added:

"It is not a question for individual farmers to decide or even small groups of farmers, it needs to be an industry decision..."

The top two Australian Agribiotech players is the Federal government CSIRO, and the State government alliance of Molecular Plant Breeding Cooperative Research Centre, an alliance of 120 government, academic and commercial researchers.

Patents were considered valuable property that could be traded internationally "*The breakthrough came when the CRC for plant science started to take out patents. Patents are property; Property is valuable and therefore it can be traded (Buller and Taylor 1999).*"²²

The Australian research and development sector formed numerous alliances to protect their own interests. One of the first to do this was the CRC for Plant Science.

"There was a vision among the founders of the Center (CRC for Plant Science) that research focused on gene technology for plant based agriculture could form the basis of linkages with agribusiness... Equally important was the availability of new money to invest in research collaborations."

*"The risk sharing approach, coupled with R&D tax incentives, encouraged companies to invest in fundamental research in an environment where they had some confidence that **the eventual output would be tailored to their business objectives.**"*

*"Within a relatively short period, emphasis within the CRC Program turned to showing benefit from investment. The CRC Program appeared to be influenced by the political climate at the time ... **we felt pressure to develop and strengthen linkages to industry...** The primary consequence was to shift our criteria for evaluating new research ideas to a greater emphasis on those that would develop industry linkages. **This required scientists to sell their science, demonstrating to interested companies how their upstream research could impact the business system of a company.**"*

*"Not all the practices we used stood the tests of time and those of us involved in management learned a great deal. In retrospect, there were some evolutionary blind alleys and some processes that were driven more by compromise than logic. Firstly, industry collaborative research (indeed any sort of collaborative research) is not everyone's cup of tea. **Researchers, who cannot commit to the tradeoffs necessary to achieve true collaboration, should not be induced into such a scheme with the lure of extra resources.**"²²*

²² Buller, C. & Taylor, W. (1999). Partnerships between public and private: The experience of the cooperative research center for plant science. *AgBioForum*, 2(1), 17-23. <http://www.agbioforum.org/v2n1/v2n1a04-buller.htm> The CRC for Plant science is a collection of academic scientists at the Australian National University and the CSIRO Divisions of Plant Industry and Entomology.

²² as above

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Research institutes failed to take into account the ability to recover the additional costs of the final products that farmers would ultimately pay for. Investors have no intention to take over previously unprofitable public plant breeding as they require a very profitable return on their investments. Public research and development consequently moved away from the “public good” principles to the “corporate profit” principle and the incentive appears to be to invest in technology patents rather than varieties.

Due to the requirement from research and development sector to satisfy private enterprise demands, the financial demand from farmers is increasing with little matching evidence of financial benefit for farmers. The limiting factor is the unwillingness of farmers to pay for additional costs due to the lack of performance of the new variety. The strategy appears to be failing and the research sector is desperately working at avenues to attract more funding and more profit from farmers.

Of serious concern is the recent investigation by the Australian Centre for Intellectual Property in Agriculture (ACIPA) that reveals the seed industry’s push to remove farmer’s rights to replant all seeds. It also recommends that the expensive burden of proof should be imposed on the farmer to prove they are innocent, rather than the seed industry to prove a farmer is guilty. If recommendations contained in the issues paper are legislated, farmers will have little option but to accept high costs and new expensive seeds released by plant breeders under confidential terms of agreement with companies such as Monsanto. This should be considered anti-competitive as it is effectively forcing farmers to pay more than a product is worth, particularly when farmers have assisted to produce that product through R&D funded by compulsory GRDC levies and trial cooperation.²³

²³ A review of enforcement of Plant Breeder’s Rights. Issues paper. March 2007. www.acip.gov.au

Further references for Section 1.7:

- Michael Morris, Greg Edmeades and Eija Pehu: HortScience Vol. 41 (1) February 2006 “The Global Need for Plant Breeding Capacity: What Roles for the Public and Private Sectors?”
- Module 10: Case studies on Commercialising Research: Foreign Affairs and Trade. “Intellectual Property and Biotechnology – A Training Handbook” [Monsanto’s relationship with CSIRO](#) – “In Australia, CSIRO is Monsanto’s main research partner. It has R&D contracts with Monsanto to undertake research using the Bt gene and promoter sequences. CSIRO needed to negotiate separate arrangements with Monsanto to be in a position to commercialise the research and development.
- “Biotechnology and Genetic Resource Policies. Brief 4, January 2003. “Accessing Other People’s Technology” Carol Nottenburg, Philip G. Pardy, and Brian D. Wright. Intellectual Property at the Center for the Application of Molecular Biotechnology to International Agriculture, Australia (IFPRI)
- Australian Centre for Intellectual Property www.acip.gov.au
- Grains Research and Development Corporation <http://www.grdc.com.au>

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1.8 Government support

The Australian Federal government is reducing government funding to plant breeding in a move to promote industry funding. Farmers pay a compulsory levy on harvested crops (approx 65m/year) which is the key part of the Grains Research and Development Corporation finances. GRDC funding has recently been redirected from plant breeding and development to pre-breeding, which was previously funded through government-funded universities. Ironically, the template from GRDC to government for statistics lists farmer-funding contributions as “government contributions” which significantly overestimates government funding.

Government policy has moved away from “public good” services and is now driven by economic measures and statistics, such as the number of patents and spin-off companies formed by government investment. With the National Competition Policy principles promoting state governments to commercialise public good services, Australian governments encouraged each sector of the existing research and development chain to provide a commercial return on capital spent. This led to the requirement to attract corporate investment and alliances to plant breeding, particularly for biotechnology where numerous patents were involved in each variety produced.

Australian research recognised the opportunity to capitalise from the ability to patent techniques and intellectual property stemming from research. What was traditionally a scientific research incentive soon became a Federal government incentive. In 1999, CSIRO responded to a Senate question:

“How best can Australia capitalise on its publicly funded biotechnology?”

The response from CSIRO included:

"In most cases, Australia alone does not have the resources or market access, or often the total required intellectual property, to take successful discoveries in biotechnology to the global markets these products can command and need to recoup investment in R&D. "... "The multinationals recognise that this country has some of the most effective plant gene technology research teams in the world and that these are likely to be of consequence in the development of their own business systems. They are willing, in most cases, to consider trades with some of their intellectual property."

A joint State-Commonwealth regulatory system was agreed to by the Council of Australian Governments and the Australian Federal Government signed a biotechnology strategy in 2000 promising a path to market for GM crops. A key aim of the policy was *“To attract essential foreign investment and development partners...”* Concerns of farmers were only to be addressed *“through monitoring and public awareness.”* The biotechnology strategy promotes Federal government action to encourage development, application and management of intellectual property, to support policy and program initiatives and programs and facilitate a consistent approach across the Commonwealth and State government and industry to promote biotechnology.

In order to promote the GM industry by preventing any restrictive regulations, in May 2002, the Federal Government Primary Industries Ministerial Council determined that industry should “self-regulate” risks.²⁴

²⁴ Australian Government Department of Agriculture, Fisheries and Forestry "Biotechnology Strategy for Agriculture, Food and Fibre." August 2003. Appendix 1 Context. 1. Government Approach to Biotechnology in Agriculture, Food and Fibre. <http://www.daff.gov.au/agriculture-food/biotechnology/daff/bsaff> Appendices:(PIMC=The Primary Industries Ministerial Council and is the state Ministers and Federal Minister of Agriculture.) *"PIMC recognises the need for commercial flexibility to meet market demands. In May 2002 it determined that industry should self-regulate risks posed by gene technology to agricultural production supplemented by government monitoring. The Commonwealth maintains this position."*

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All public service employees are bound by the Australian Public Service values including the requirement to be responsive to the Government in implementing the Government's policies and programs.²⁵

It became obvious that corporate finance to the R&D industry was conditional on legislative leniency. In April, 2003, on the same day same day the Office of the Gene Technology Regulator approved GM Invigor canola, Bayer Cropscience announced it was “*extending its lucrative investment in CSIRO*”.²⁶

Federal Minister for Agriculture, Warren Truss: “*Bans are stupid...you can't seek to attract biotechnology investment, and then ban the use of the products.*”²⁷

Industry is keen to be part of the GM alliance, researchers are desperate to form alliances in return for corporate control, and governments require profits out of research and development rather than to fund public plant breeding. As a result, GM crops are often promoted for traits (such as drought tolerance and salt tolerance) that are not relevant to the traits offered (chemical resistance) but farmers traditionally have trusted information provided by these institutes. It is also very probable that policy makers supporting a pro-GM policy have been misled by vested interests about the benefits and risks of GM.

Government reports need to be analysed, not believed. For example, the 2008 ABARE reports were funded by the Rural policy division under the National Biotechnology Strategy which has a mandate to provide a path to market for GM crops. The reports fail to factor in GM market rejection, segregation and additional costs and assume there is a yield advantage. The press releases from ABARE show the growing enthusiasm of government to attract investors.

- 31 March 2008: “*The uptake of GM oilseeds and wheat could lead to a gain of \$912 million in the Australian economy by 2018*” announced Phillip Glyde from ABARE.

This fails to account for the fact that no GM wheat is grown anywhere in the world because markets strongly reject products such as wheat that need a GM label. Despite this, ABARE has calculated that all farmers will grow it and be paid well for it.²⁸

- 12 May, 2008: “*If the adoption of GM canola is delayed for five years, for example, the cumulative foregone benefits would be around a total of \$97 million for Western Australia and \$66 million for South Australia*” Mr Glyde said.

GM canola benefits were grossly over-inflated and additional costs were not included.²⁹

These reports appear to be more of a prospectus promoting the ability for investing GM companies to calculate their income based on the fee from the “advantage” calculated.³⁰

²⁵ <http://www.apsc.gov.au/values/index.html>

²⁶ CSIRO quote: http://www.non-gm-farmers.com/news_details.asp?ID=2313

²⁷ March 5, 2003, Australian Broadcasting Corporation (ABC) News

²⁸ http://www.abare.gov.au/corporate/media/2008_releases/31mar_08.html

²⁹ http://www.abare.gov.au/corporate/media/2008_releases/12may_08.html

³⁰ In Monsanto's October 2008 Financial statement for investors, Monsanto used the example of current pricing for Yieldgard triple stacked trait. Monsanto charges 100% of the replacement value for costs farmers would have incurred for substitute insect and weed control (US\$11-19/acre) plus an additional \$18-30/acre for estimated yield advantage and indirect benefits such as convenience and peace of mind. http://www.monsanto.com/pdf/investors/2008/10_07_08.pdf
Further References for Section 1.8:

- Grains Research and Development Corporation Annual financial reports and interviews
- Senate estimates questions and answers with GRDC and CSIRO
- Senate Hansards
- Australian Government Department of Agriculture, Fisheries and Forestry

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1.9 Benefits, problems and alternatives of GM canola

Almost all GM crops are either HT (herbicide tolerant) or Bt (the crop produces its own Bt insecticide to kill budworm and bollworm in cotton and corn). GM crops do not directly increase yield; they are a weed management tool or an insect management tool only. The United States Department of Agriculture explained in 2002“

GE crops available for commercial use do not increase the yield potential of a variety. In fact, yield may even decrease if the varieties used to carry the herbicide-tolerant or insect-resistant genes are not the highest yielding cultivars. However, by protecting the plant from certain pests, GE crops can prevent yield losses compared with non GE varieties, particularly when infestation of susceptible pests occurs.”³¹

GM canola has only been modified to be tolerant to specific herbicide chemicals that are used to control weeds without killing the crop. Herbicide tolerance is not specific to GM canola as most of the canola grown in West Australia is non-GM herbicide tolerant canola. The GM varieties approved for release in Australia are either Roundup Ready ® canola (the canola is resistant to glyphosate) or Invigor canola ® (the canola is resistant to glufosinate ammonia). Both traits involve the insertion of a gene from soil bacteria to give the plant resistance to a specific herbicide that would normally kill the crop. These traits are therefore only a weed control tool due to herbicide tolerance and should be compared to conventional and non-GM herbicide tolerant varieties of canola.

Both triazine and imidiazolonone (the chemicals used on non-GM herbicide tolerant crops) have a residual weed control. Both the herbicides used on GM crops, glufosinate ammonium and glyphosate do not have a residual control. A residual control gives constant weed control but without it, the chemicals will kill weeds that come in contact with the chemical but not the weeds that continue to germinate after spraying. If using glyphosate or glufosinate ammonium on weeds known for multiple germinations, it is necessary to either use multiple chemical applications or delay spraying until as much as possible of the weed population have germinated. However, any delay of uncontrolled weed growth for early germinating weeds will lead to crop losses and yield penalties. A weed management strategy includes multiple chemical applications, additional residual herbicides and/or mechanical weed control prior to sowing.³²

Overseas research (Tharp & Kell’s) has shown that weed control in GM crops is severely restricted due to a lack of residual activity. *“The greatest limitation of these herbicides is their lack of residual herbicidal activity in soil.”*³²

The main weeds that create both yield and quality problems in West Australian canola are ryegrass, wild radish, wild turnip and wild mustard. Weed control is essential and usually controlled with chemical before the crop is planted, when they are planted and after they are planted. The main weeds, ryegrass and radish are not a problem in Canada where most of the global GM canola is grown.

Multiple germinations of ryegrass occur throughout the growing season and good ryegrass control is essential to prevent serious yield penalties associated with competition with the crop, particularly on emergence of the crop.

³¹ USDA <http://www.ers.usda.gov/publications/aer810/aer810g.pdf> pg 21 Jorge Fernandez-Cornejo and William D. McBride. USDA Agricultural Economic Report No. (AER810) 67 pp, May 2002
<http://www.ers.usda.gov/publications/AER810/>

³² WSSA Abstracts, 1998, Ref: 1.14 Weed Science Society of America

³² Weed control strategies in glufosinate resistant and glyphosate resistant corn. B. E. Tharp*and J. J. Kells, Michigan State Univ., East Lansing.

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Wild radish, wild turnip and wild mustard are broadleaves and difficult to control because they are closely related to canola. Due to this close relationship, there is no chemical control option to control these weeds after the crop emerges. If weeds are not controlled, they cause severe yield losses and degradation of the quality of the canola grain. Contamination of canola with seeds of Brassica weeds such as wild radish and turnip weed poses major problems for marketing canola. These weeds contain high levels of erucic acid and glucosinolates and can result in the oil, after crushing, not meeting the canola standard.³³ For this reason, high receival standards are in place and contaminated loads will not be accepted. For example, farmers currently pay a penalty of \$4/tonne for each turnip seed found in the sample, with a maximum allowable limit of only 6 seeds per gram for C1 grade and 10 seeds per gram for C2 grade.³⁴

Loss of seed from plants, particularly in hot and windy conditions, can be up to 70% for canola (Colton & Sykes 1992), which may lead to substantial number of volunteers appearing in subsequent crops. Data suggest that canola seed density in the soil can range between 2000 seeds m² in Canada after harvest (Legere et al. 2001) to 10,000 seeds m² in the U.K. (Lutman 1993). Recent field surveys conducted across Canada, found volunteer canola still present in fields 4-5 years after a canola crop had been grown, albeit at low densities (Legere et al. 2001).³⁵

While canola is currently only a minor problem weed in other crops in agricultural areas within Western Australia and other states, (Groves et al. 2000) glyphosate tolerant canola could become a weed problem as glyphosate is the most commonly used knockdown herbicide in the agricultural industry. Unwanted canola is called a “volunteer” and volunteer canola is among the 20 most common weeds in fields in Alberta, Canada, occurring as a residual weed in 11.8 and 10.5% of all wheat and barley fields surveyed in 1997 (Thomas et al. 1998). Volunteer canola has been recognised as fourth ranked weed in the central cropping region of Manitoba, Canada (Kaminski 2001). Canola also occurs as a weed in cropping regions in the U.S.A. (Weed Science Society of America 1992).³⁵

Agronomic comparisons of herbicide tolerant canola:

1. Non-GM Triazine Tolerant (TT) canola:

Non-GM TT canola is the most popular type of canola grown in WA as it has resistance to the triazine group of chemicals that gives residual activity, not only to control grasses but to selectively control the closely related weeds of canola (wild radish, turnip and mustard). It was released in 1995 and by 1999 comprised about 90% of the area sown in WA. (Carmody et al. 2001).³⁶

Many farmers use TT canola as a “break crop” to use a different herbicide group to that normally used in their cereal cropping to prevent weeds selectively developing chemical resistance. Rotating commonly used chemical groups ensures long-term sustainability by controlling herbicide tolerant weeds.

The gene that gives tolerance to atrazine and simazine was obtained from a weedy brassica that had naturally developed a tolerance to triazine herbicides. This gene was transferred to canola using traditional non-GM plant breeding techniques.

Atrazine may be applied pre and post emergent to TT canola for excellent residual control of the major

³³ Australian Oilseed Federation Grower Quality Guide 2001

³⁴ CBH Harvest handbook 2007 – 2008 season 6.7 Canola standards

³⁵ Office of the Gene Technology Regulator (OGTR). The Biology and Ecology of Canola (Brassica Napus) July 2002. <http://www.ogtr.gov.au/pdf/ir/brassica.pdf>

³⁵ As above

³⁶ Herbicide-resistant Crops and Pastures, Ed G. D. McClean and G. Evans, Bureau of Resource Sciences, Canberra, 1995

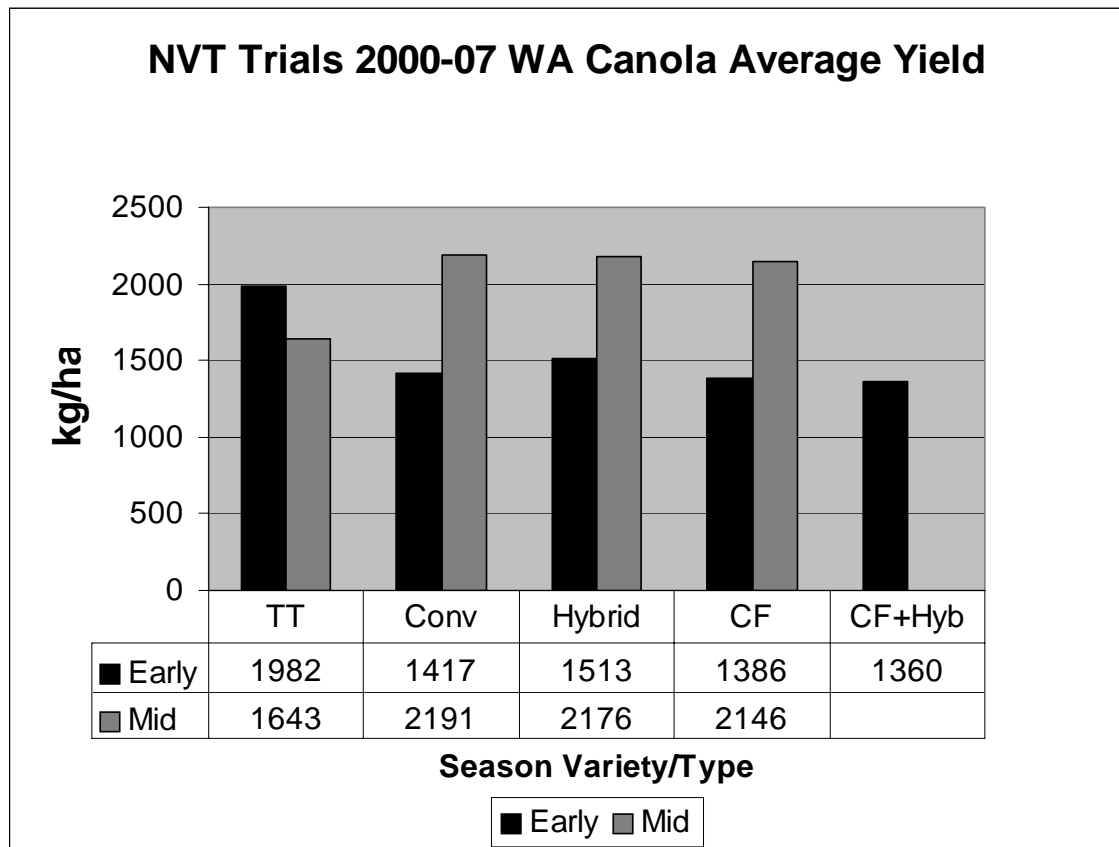
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weeds in WA. TT varieties can be sown without a knockdown weed control although the use of a knockdown application of glyphosate is common. Triazine resistant weeds are uncommon but good management in the form of rotating chemical groups is required to prevent its decline. In severe ryegrass populations, in dry conditions or to prevent ryegrass resistance to triazines, it is recommended to incorporate the residual chemical trifluralin when sowing.

TT has limitations that should be managed. The gene for triazine tolerance reduces the ability of the plant to use sunlight so growth is slower than in non-TT varieties. This slow growth is countered by ensuring the canola crop is planted early to allow more growth time.

Exceptional dry, late conditions experienced in the 05/06 and 06/07 season revealed the worst of the TT limitations as sowing was delayed. Selective data may give false impression of yield penalties for TT canola in normal conditions. When less selective data using long term averaging of the NVT trials is calculated, the average potential yield of early season TT canola exceeds even the higher yielding hybrid varieties.

The **GRDC Long Term National Variety Trials** ³⁷ grown in WA from 2000 to 2007 reveal that on average, Triazine Tolerant canola outyields all canola in early season varieties while TT is the lowest performer in mid season varieties. This counters the selective data used claiming a significant yield penalty with TT crops.



Key:

TT = Triazine tolerant varieties

Conv = Conventional varieties

Hybrid = Conventional hybrid varieties

CF = Clearfield Imidiazolonone-resistant varieties

CF + Hyb = Clearfield Imidiazolonone-resistant hybrid varieties

³⁷ GRDC National Variety Trials WA Long Term Predicted Yield Report www.acasnvt.com.au

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Hybrids improve early vigour and although hybrids were introduced to non-herbicide tolerant varieties in 1998, they have only just become available in non-GM Herbicide tolerant varieties. The incorporation of triazine tolerance with hybrids has countered the slower growth of TT and boosted yields of late sown canola significantly. Trials at Wongan Hills 2003 (WA) showed an impressive yield improvement of 39%.³⁸ A more conservative estimated yield improvement of “10-15% increase over the next best TT variety” is promoted by the Canola Breeders WA (CBWA). The seed may be available for sale by late 2009.³⁹

2. Non-GM Clearfield® Imidazolinone tolerant canola

Clearfield® canola was developed through normal selection and breeding methods to be tolerant to the imidazolinone group of herbicides. Imidazolinone herbicides belong to the Group B herbicide grouping which have a residual action in the soil.

Group B herbicides are used in cereal cropping and those farmers using canola for a break crop to rotate chemical use, would not benefit by using Clearfield® canola.

Due to overuse of Group B herbicides, there is widespread resistance to Group B herbicides in ryegrass, and radish and limited resistance in wild turnip. This widespread limits the use of Clearfield® canola. The first Clearfield® hybrids were commercially released in 2007.

3. GM Invigor® canola

The InVigor® canola trait developed by Bayer CropScience has been genetically engineered for tolerance to glufosinate-ammonium (Liberty® herbicide) which has no residual weed control activity.

The optimal use of the new broadacre herbicide Liberty® would be a “2 by 2” application, i.e. 2kg/ha plus 2 kg/ha first stage application at the 2-4 leaf stage of canola and a top up application 7-10 days later⁴⁰. In 2002, glufosinate ammonium herbicide costs at recommended rates was estimated to be \$64/ha.⁴¹

As Liberty® offers no residual grass control, it is recommended to apply trifluralin when sowing the Invigor canola to prevent yield penalties while the crop is emerging. Liberty® fails to control radish and turnip and is one key disadvantage of the herbicide for canola production in WA. For these reasons, it is unlikely that Invigor canola will be suitable for W.A.

4. GM Roundup Ready ® canola

The Roundup Ready canola trait developed by Monsanto has tolerance to glyphosate, which has no residual weed control activity. Glyphosate was first developed by Monsanto and introduced as Roundup®, since the patent expired in 2000, generic glyphosate has been available for use under different trademark names.

The recommended rate of 621gm/ha of glyphosate⁴² (similar to 1.38l/ha of glyphosate 450) will give a good non-residual knockdown control of weeds. As glyphosate offers no residual grass control, it is recommended to apply trifluralin before sowing the RR® canola to prevent yield penalties while the crop is emerging. Trifluralin offers long-term ryegrass and wireweed control, so alternative grass control should not be required.

A serious limiting factor for Roundup Ready® canola is the very small window of opportunity to apply glyphosate as it can only be applied between the 2-6 leaf stage. Yield penalty problems can occur in

³⁸ 2004 WA Ag Dept Oilseeds Crop Updates

³⁹ Milton Sanders, CBWA. “First show for new TT hybrid canola” Farm Weekly Sept 18,2008

⁴⁰ APVMA label recommendation.

⁴¹ WA Government report for GM crops 2002

⁴² APVMA label recommendation.

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Roundup Ready® crops if management plans are not followed. Roundup Ready® varieties have tolerance of glyphosate up to the six-leaf stage but spraying after this stage can result in reduced pollen production and growth rates, aborted flowers and pods and yield losses. Crop damage can also occur if plants are sprayed when stressed.⁴³

Roundup Ready canola: Glyphosate can only be applied from 2-6 leaf stage. The photo below shows canola at 6-7 leaf stage (less than one month after planting).
No glyphosate can be applied after this stage.

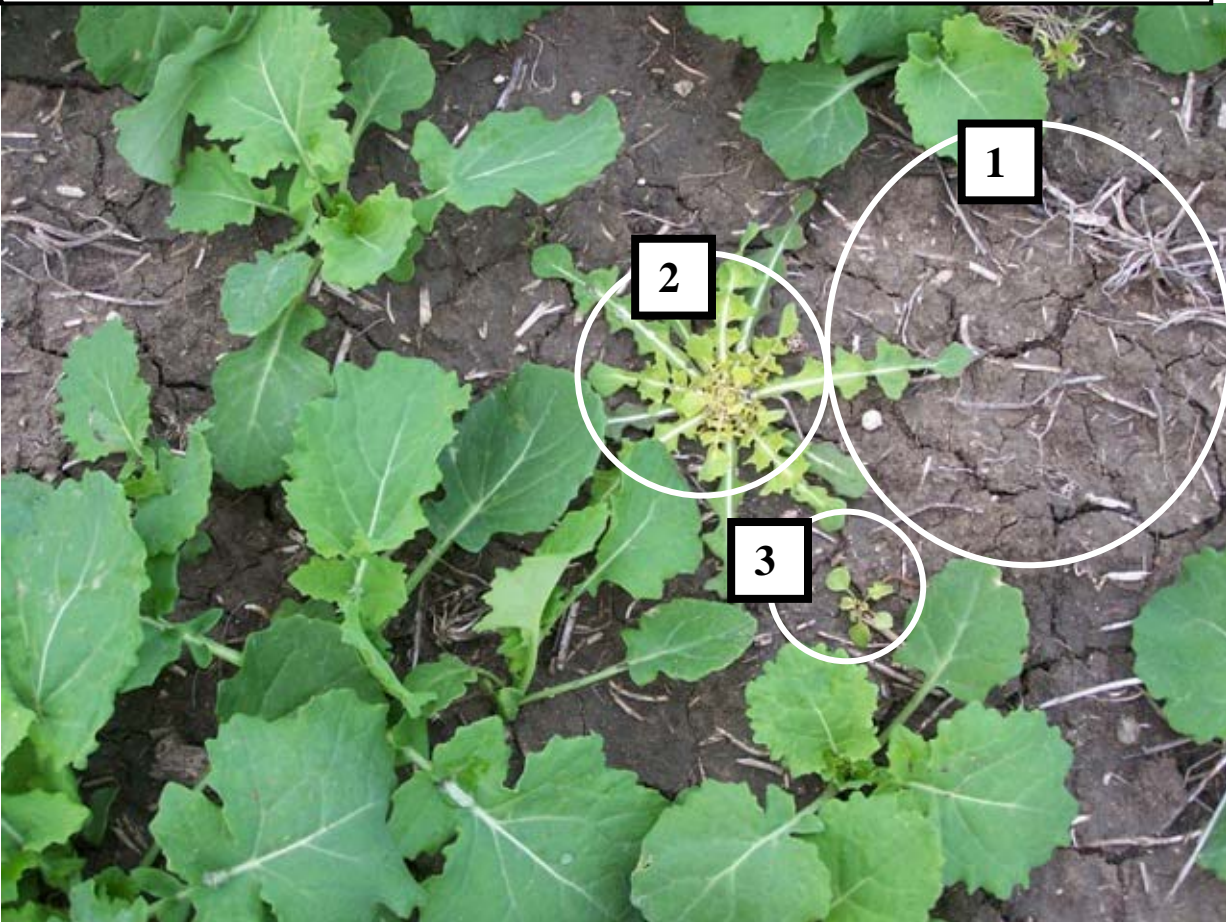


Photo: Available at Australian Oilseeds Federation website⁴⁴

GM Roundup Ready canola weed management (Wimmera 2.7.08). On Friday 9 May 2008, Roundup Ready Hybrid was sown. The canola is at the 6-7 leaf stage.

1. Good grass control has been gained by the application of the residual grass control herbicide trifluralin 480 @ 1.6 L/ha prior to planting the canola. **(Circle 1 marked)**
2. Early emerged broadleaf dying from the application of glyphosate (Roundup) at 900 g/ha around 23 May (14 days after planting). **(Circle 2 marked)**
3. Due to lack of residual control, further weeds germinate and may require further chemical control (not available for closely related weeds such as wild radish and turnip). **(Circle 3 marked)**

⁴³ "The Road to market with Roundup Ready" GRDC Ground Cover May-June 2008

⁴⁴ http://www.australianoilseeds.com/agronomy_centre/the_virtual_canola_site/wimmera/2july

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Glyphosate is one of the most valuable herbicides in Australian agricultural systems but Annual Ryegrass can develop resistance to glyphosate from continued use. The first confirmed finding in Australia was in 1996.⁴⁵ A resistance management plan is incorporated into the Roundup Ready crop management plan to protect the usefulness of the RR trait. Part of this management includes using knockdown alternatives to glyphosate (ie. tillage or paraquat/diquat) in following rotations. This causes concern because reverting back to tillage is a backward step environmentally and paraquat/diquat is far more toxic and less effective (particularly in heavy trash) than the glyphosate usually used as a knockdown.

Viable canola seed remains in the ground which can germinate for many years after the crop. If glyphosate is used as a knockdown in following crops, it will be essential to add additional chemicals to glyphosate to control the glyphosate tolerant volunteers. This significantly increases the use and cost of herbicides required. Additional requirements documented in Monsanto's Crop Management Plan for GM farmers to minimise potential impact of gene movement include to scout paddocks to identify herbicide tolerant canola in succeeding crops, keep paddock records, clean machinery and trucks and use proper rotations.

Agronomic limitations have surprised farmers growing GM RR canola for the first time in NSW and Victoria, as the assumption was that weed control and yield would be improved. It was assumed that glyphosate use was not limited. The reality is that grasses are controlled with a different chemical not requiring a herbicide tolerant crop (trifluralin) and there will be inadequate control of the broadleaf weeds (particularly wild radish, and wild turnip) as they could emerge after the 6 leaf stage that leaves no alternative weed control option. Although this late emergence may not impact much on yield, they will impact on quality and marketability and could incur price penalties.

"Although Roundup Ready canola varieties have high herbicide tolerance during vegetative stages, reproductive tolerance is low – so herbicide should only be applied from crop emergence to the six true-leaf stage (prior to bud formation). Spraying outside this window can result in reduced pollen production and growth rates, aborted flowers and pods, and yield losses. Crop damage can also occur if plants are sprayed when stressed."⁴⁶

Inspection tours of the 2008 Roundup Ready GM canola plots in Victoria by Landmark agronomists was summarised as:

"A key learning for the group at Elmore was that Roundup Ready canola is not the cure for all weed problems. One paddock of Roundup Ready canola that had a high radish population showed that with two applications of Roundup post emergence, it still had radish coming up. With no residual in the Roundup Ready system there was nothing to stop the subsequent radish germinations. The grass control on the other hand was excellent and the particular grower will be using it as a grass control option only."⁴⁷

As residual grass control was achieved by the application of trifluralin, the benefit is not GM as the same benefit can be achieved by planting conventional, non-herbicide tolerant hybrid crops.

A neighbour of a farmer growing GM in NSW (request for names to remain confidential at this stage) explained how early dry conditions caused a major germination failure of the GM canola. The Roundup Ready crop was sprayed out and barley was resown. Large quantities of GM canola are now growing in the

⁴⁵ CRC for Weeds: http://www.weedsrc.org.au/glyphosate/glyphosate_resistance_register_summary.html

⁴⁶ "The Road to market with Roundup Ready" GRDC Ground Cover May-June 2008

⁴⁷ Landmark Field Force – a Landmark agronomy resource Volume 45, Sept 18, 2008. Insert in Farm Weekly Sept 18.2008.

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barley. How will this farmer manage this contamination issue when markets such as the Middle East will not accept GM canola in barley?

NSW GM canola grower Wayne Mackay, controlled his weeds by burning stubble prior to sowing and the incorporation of trifluralin pre-sowing as recommended. He achieved good weed control without glyphosate but applied it because glyphosate tolerance was the “benefit” of his GM canola. Mr Mackay also expresses a concern that patchy germination due to lack of moisture presented a problem as it is difficult to apply glyphosate between the 2-6 leaf stage when the crop is at different stages. The second germination of the crop could not be treated as it would drop the yield of the earlier emerged crop.⁴⁸

GM canola farmer, Spencer Millear from Willaura, Victoria also revealed his disappointment:

*"Mr Millear completed the industry stewardship program established to familiarise farmers with the new technology. He was surprised by some aspects of GM canola which he was unaware of, particularly the short window of opportunity to spray the crop with Roundup herbicide. "Its not the miracle cure-all that I thought it would be," he said. Mr Millear said Roundup could only be sprayed on GM canola crop between the two leaf and six leaf stages of plant growth. "If you spray too late, you may do the canola some harm." "*⁴⁹

While some farmers are promoting the advantage of GM, confusion is still evident regarding what is due to GM and what is due to the non-GM plant the GM glyphosate resistant gene was added to. The overenthusiastic “benefits” claimed are not due to GM.

*Central NSW sales manager for Pioneer Hi-Bred, John De Lyall said grower feedback on the companies GM canola hybrid, 46Y20, was that it was “absolutely fantastic”. “It’s going so well, not because it’s GM, but because it’s a hybrid.”*⁴⁹

Little attempt has been made to date to provide economic data. Monsanto funded a GM versus non-GM comparison trial for Roundup Ready canola in a 5year rotation (canola, wheat, lupin, wheat, and canola) at Wagga Wagga in New South Wales. The final economic analysis showed a total of only \$7/ha improvement of financial return for GM Roundup Ready over the trial comparison with non-GM varieties (Pratley and Stanton)⁵⁰. This trial analysis has been controversial as the trials revealed that:

- Glyphosate was not used as a knockdown on non-GM varieties which would have controlled the weed burden;
- Despite trifluralin being recommended for heavy infestations of ryegrass in non-GM varieties, trifluralin was only used on the GM Roundup Ready varieties;
- Despite alternative options being available broadleaf weeds were inadequately controlled in the conventional varieties and;
- **Additional costs to use GM seed and seed use were not included. When even the introductory costs are offset against the \$7/ha financial benefit over 5 years, it clearly indicates a financial penalty for farmers growing Roundup Ready canola.**

⁴⁸ ABC Interview with Bruce Reynolds from Canowindra , NSW Thursday, 03/07/2008
<http://www.abc.net.au:80/rural/content/2008/s2293573.htm>

⁴⁹ Weekly Times 3.8.08 "Up-front on GM success" by Peter Hemphill – quoting Spencer Millear

⁴⁹ The Land 16.10.08. “Crop healthy but yields a mystery still” by Alan Dick – quoting John De Lyall

⁵⁰ Pratley, J., and Stanton, R. (2007) submission to Genetically modified crops moratorium review by Department of Primary Industries, Victoria, 3 December 2007. www.dpi.vic.gov.au

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Additional costs for the use of Roundup Ready canola are significant, even in the introductory phase. The 2008 introductory costs for Roundup Ready canola are:

1. Growers must undertake a 2-day Stewardship course and sign a license and stewardship agreement and a technology use agreement. The stewardship cost per farm is \$1,000 but a 50% discount was applied for 2008.
2. Seed costs were two to two and a half times more expensive than the popular non-GM varieties and farmers must purchase new seed every year.
3. A “discounted” fee of \$10.20/tonne is applicable for every tonne of grain produced from the GM crop.

It is expected that prices will increase significantly. Canadian farmers have experienced a 600% increase in price since introduction in 2006⁵¹

For the first time, GM Roundup Ready canola will participate in the GRDC National Variety in NSW and Victoria. Four mid season Roundup Ready varieties (3 hybrids) will be compared with mid season conventional, triazine tolerant and Clearfield varieties. No early season varieties will be compared and the results will likely reveal yield penalties associated with TT varieties that would normally not be present if TT limitations were managed appropriately by sowing early.

Risk Management is required to obtain accurate data to encourage informed decisions.

⁵¹ Personal interview with Terry Bohm, Canadian National Farmers Union.

* Further references for agronomy section:

- GRDC data on canola <http://www.grdc.com.au>
- “Maximising Canola Performance” <http://www.grdc.com.au/director/events/researchupdates?pageNumber=95>
- Australian Farm Journal April 08 “Canola’s bright future” by Felicity Pritchard, Oilseed Industry Development Officer.
- W.A. Department of Agriculture data on canola and crop variety sowing guides www.agric.wa.gov.au
- Planfarm herbicide guide 2008
- GRDC Groundcover articles re GM canola
- Australian Oilseeds Federation data
- Crop Protection Consultants reference manuals
- Jonathan Dodd, Robert J. Martin and K.Malcolm Howes “Management of Agricultural Weeds in Western Australia” Bulletin 4243
- Promotion brochures from seed companies marketing canola
- More on triazine tolerance: <http://www.dovuro.com.au/pages/triazine.asp>
- More on Clearfield varieties: Lentil www.agbios.com/docroot/decdocs/05-209-006.pdf; wheat info.ag.uidaho.edu/pdf/PNW/PNW0572.pdf ; canola www.grdc.com.au/growers/res_upd/south/s06/mccaffery.htm ; lentils www.meristem.com/prcg06/prcg10.html
- The benefits of Roundup Ready® canola for Western Australian farming systems Adam Ralph and Daniel Kruthoff, Monsanto Australia Limited
- <http://www.ers.usda.gov/publications/aer810/aer810g.pdf> pg 21 Jorge Fernandez-Cornejo and William D. McBride. USDA Agricultural Economic Report No. (AER810) 67 pp, May 2002 <http://www.ers.usda.gov/publications/AER810/>
- US Department of Agriculture (USDA) Economic Research Service (ERS) report (1999)
- Office of the Gene Technology Regulator Risk Assessment and Risk Management Plan. Dir 021/2002 July, 2003 . Section 435
- <http://www.the-scientist.com/news/20040521/01/> GM crops detoxify glyphosate" Charles Q Choi News from the Scientist 2004, 5(1):20040521-01 Published 21 May 2004

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1.10 Consumer concern

Genetically modified foods are surrounded in controversy leading to consumer concern and market rejection. While ethically some consumers reject cross-kingdom breeding and corporate control, there are serious health concerns that have not been addressed. It would seem logical to provide consumers with the requirements needed to allay concerns in the way of independent health testing but this has proven to be difficult, due to the patent system involved. As detailed in the International Assessment of Agricultural Science and Technology for Development (IAASTD) report⁵², patents restrict access to enable researchers and farmers to use patented GM seed for independent research of any kind.

Health related feeding trials from GM companies and independent research have shown a range of problems with GM foods, including damaged immune systems and increased allergies, development of lesions and/or pre-cancerous growths, unusually enlarged or damaged organs, temporary infertility and unexplained death. When testing the second generation or developing animals, findings included smaller organs such as brain, liver and testicles, immune system damage and metabolic change, organ damage, abnormal anxiety and aggression, pre-cancerous tumours, infertility, including up to 100% permanent male sterility in offspring and abnormally high death rates.⁵³

Consumers understandably want regulation to ensure GM foods are safe but the regulatory process fails to provide the assurance that consumers are requiring. Regulation only analyses the information provided by the applicant and GM canola was approved as safe by the regulatory process yet:

- the oil, which is the part consumers eat, was not included in any animal feeding trials;
- the feeding trials submitted were on the remaining meal byproduct for stock-feed but FSANZ has no authority over stock feed so these tests escaped regulation despite finding an increased liver weight of 17% in Roundup Ready canola when compared to non-GM comparisons; and
- if toxicological studies are done, they are generally rudimentary and are generally not done on the actual crop, but on a protein that was obtained by genetically engineering a bacterium to provide a protein that the regulators assume is the same as the protein produced by the GM plant.

As a result, the Australian regulatory authority is considered nothing more than an expensive public relations exercise to those with serious concerns. It appears any GM company is allowed “self management” on health regulations and if they don’t want to submit concerning data, they don’t have to.

CSIRO were unique as they performed health testing that is relevant to human health. They had little concern about transferring a gene from a bean to a pea but they were surprised that the immune tests resulted in the conclusion that this product would cause allergic or inflammatory reaction in humans.⁵³

Consumers are reluctant to be guinea pigs in an unmonitored trial. Many want the choice to avoid GM foods, as they are not prepared to take the risk.

⁵² Executive Summary of the Synthesis Report of the International Assessment of Agricultural Science and Technology for Development (IAASTD) http://www.agassessment.org/docs/SR_Exec_Sum_English.pdf

⁵³ “Genetic Roulette” The documented health risks of Genetically Engineered Foods by Jeffrey M. Smith. Data from: Monsanto, CSIRO, Syngenta/Bayer Cropscience, Calgene, UK statistics 1999, UK Arpad Puztai, Russia Irena Ermakova, Malatesta, Fares.

⁵³ Referenced as: V.E. Prescott et al “Transgenic Expression of Bean r-Amylase Inhibitor in Peas Results in Altered Structure and Immunogenicity” Journal of Agricultural Food Chemistry (2005):53

Further references for section 1.10 Consumer concern:

- Judy Carman, Institute of Health and Environmental Research (IHER) www.iher.org.au
- Food Standards Australia New Zealand (FSANZ) <http://www.foodstandards.gov.au/>
- Office of the Gene Technology Regulator (OGTR) <http://www.ogtr.gov.au/>
- Australian Senate Estimate Hansards <http://www.aph.gov.au/hansard/senate/commtee/S7637.pdf> (p 15, or CA11) June 3, 04 Extract: http://www.non-gm-farmers.com/news_details.asp?ID=1381

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1.11 “GM” or “GM-Free” Labels: Not legislated or not possible.

The Australian labelling legislation for GM products does not require highly processed goods, such as oils, to be labelled. As canola oil is not labelled, a "GM-free" or "Non-GM" label would be required to enable choice for the Australian consumer. Domestically, many supermarket chains and brands have a GM-free policy to promote sales as the majority of Australian consumers prefer a GM-free product.⁵⁴

There appears to be a misunderstanding that contamination will be accepted in non-GM products but no GM contamination is accepted in any products using either a “GM-free” or “Non-GM” label. The ACCC is clear on this issue:

*A "GM free" claim left no room for ambiguity under the current Trade Practices Act. GM 'free' means no detectable GM.*⁵⁵

The cause of confusion was further clarified by the ACCC in a letter to WA Ag Minister, Kim Chance and the GMO Ministerial committee dated 17 March 2008:

"The confusion appears to have arisen in terms of the Food Standards Australia New Zealand (FSANZ) Food Standards Code requirement which exempts products or ingredients from being labelled GM if they only have up to 1 percent of the material where its presence is unintended."

In 2004, the first GM legal case involving Food Standards Australia New Zealand was tried. A New Zealand sausage company was found to have GM contamination as low as 0.0088% in a “GM-free” and “Non-GM” label. The Auckland Company Bean Supreme was fined \$4,250 plus costs after admitting they breached neither the Fair Trading as neither a "GM-free" nor a "non-GM" label allowed any contamination of GM (not even 0.008%). When first reprimanded for a “GM-Free” label, the company changed the label to “Non-GM” after referred to Gene Technology Grains Committee industry protocols claiming that “Non-GM” labels allowed a contamination tolerance of 1%, but both labels “*contravened the Act.*”

The NZ Commerce Commission Communique explained:

"In the Commission's view 'free' meant 'free' and 'non' meant non' in the eyes of the consumer. Bean supremes attempts to remedy its misleading labels by replacing the 'GMO Free' labels with 'Non GM' labels did not fix the misrepresentations. This case is important in clarifying for the industry what is expected in regards to the accuracy of GM claims."

*"... the difficulty was that the offender had a mindset as to what these expressions meant and was unable to get its head around the fact that **whatever the expressions meant to the industry, it did not mean the same to consumers...**"*⁵⁶

The NZ Commerce Commission chairwoman, Paula Rebstock stated:

"The case would set a valuable precedent for the food industry."

⁵⁴ True Food Guide <http://www.truefood.org.au/index2.html>

⁵⁵ ACCC “Information regarding genetically modified organisms and foods” News For

⁵⁶ NZ Commerce Commission Communique

<http://www.comcom.govt.nz/Publications/ContentFiles/Documents/Communique%20-%20March%202005.PDF4>.

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There is also similar confusion regarding the European tolerance level of 0.9% as the EU “GMO labelling” Regulation (EC) No. 1829/2003 EU law was specific to a compulsory GM label rather than how to label a product as “GM-free” or “Non-GM”. Germany and Austria are two of a small number of EU Member States that have legislation in place that strictly regulate positive claims for non-GM products.

The 2008 EU Commission clarification of rules regarding labelling state:

“[W]hen operators have taken contractual precautions in order to strictly limit the risks of the presence of GM material, ie. by an identity preservation scheme, the possible presence of such material should be considered as adventitious or technically unavoidable and products have not to be labelled in accordance with Articles 13 and 25 [EU Regulation (EC) No. 1829/2003, JK] if this presence is below 0.9 %. This approach is valid for both products produced in the EU or imported from third countries.”⁵⁷

Interpretation clarity was provided by the German Federal Ministry of Agriculture (BMELV) which also emphasised that national interpretations rarely differ among Member States, while enforcement and monitoring does. A feed manufacturer wanting a “GM-free” claim on the final animal product was used as an example in the hypothetical case. The limit of 0.9% “adventitious” allowance of GM needed to be proven to be adventitious or technically avoidable. An operator must “*have taken contractual precautions in order to strictly limit the risks of the presence of GM material*”. The example used as a suitable regime is the establishment of an Identity Preservation (IP) system.

It is considered that the clause “strictly limit” means no GM contamination therefore, contracts must stipulate no acceptance of GM contamination. As zero detection is not technically possible to verify by even the most sensitive tests, the term “*max. 0.1%*” is used in EU and international commodity trade. While it is recognised that some contamination could occur

“The intention of the initial system must demonstrably aim for a total absence of GMOs.”⁵⁸

In July 2005, a German breakfast cereal manufacturer received a letter from the enforcement agency further clarifying the rules. The agency tested the company’s product containing a soy ingredient showing 0.6% and 0.7% GM contamination. The review process of the companies testing regime showed a range of between 0.1% - 0.7% and the testing data submitted by the supplier showed contamination of 0.3%.

Although contamination was below the threshold level of 0.9%, contamination, the knowledge of the test results indicated that the contamination was not “adventitious” or “technically unavoidable”. Not only was it not possible to label as GM-free, but the exemption of 0.9% tolerance for “adventitious” or “technically unavoidable” contamination did not apply. It was recommended that a compulsory GM label should have accompanied the product.⁵⁹

A certified identity preservation system is required to label a product GM-free to enable the supply chain to provide the GM-free product demanded by markets. Certification systems involve a commitment by industry to follow and provide traceable documentation to verify that the suppliers, producers and operators have

⁵⁷ EU Commission’s Standing Committee on the Food Chain and Animal Health (SCoFAH) states in item 7 (Miscellaneous) of the Summary Record of its meeting held on 16 June 2008: “Implementation of the labelling rules with respect to the requirement of technically and unavoidable presence of GM material”

⁵⁸ Understanding the detailed buyer needs when serving European feed compounders producing for “GM-free” claims. 30 September 2008 by Jochen Koester – TraceConsult, Geneva

⁵⁹ “Certified non-GM ingredients a must to avoid GM labelling in EU” by Jochen Koester, director of IMCOPA Europe SA. Pg 13 “The Non-GMO Report” October 2005 www.non-gmoreport.com available at http://www.non-gm-farmers.com/news_details.asp?ID=2479

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taken steps to avoid any presence of GM materials. The non-GM grower is required to take active steps to prevent contamination including ensuring the minimum distance from a GM canola crop is 400 metres. The certification standards (9.8.2) stipulates that no more than 0.1% contamination of approved GM products is detected when tested.⁶⁰

Yet, to date there has been a denial from industry that no tolerance is accepted in a non-GM product because this would be impossible to achieve if GM is commercially released.

**“Non GM” is NOT possible if GM is introduced.
Pollen and seed transfer will mix GM with non-GM.**



Contamination will occur through pollen, wind, flood, animals, farm operations, storage and handling, transport, seed cleaning, contaminated seed and human error.

Left: ripe canola pod showing small size of canola seed compared to match.

Middle: Fenceline showing how an entire canola crop blew out of the paddock during a wind.

⁶⁰ www.cert-id.com Cert ID Non-GMO Certification Program Standard Version 4
<http://www.cert-id.eu/images/innerimage/CERT%20ID%20Non%20GMO%20STD%204.0-CERT-001-4.0%20non-controlled%202005.pdf>

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1.12 Inadequate Australian Segregation Plans

Government has promised GM and non-GM coexistence through segregation but allowed “industry self-management” and industry has decided that coexistence is not an option.

A European Union Policy review document on Monsanto explained:

"The company (Monsanto) took an early decision not to segregate GM and non GM crops and has encouraged moves from the WTO to force Europe to accept unlabelled GM products. For commodity crops, the company perceived that segregation was not economically viable, nor was it something that the company could control."

A Senior Monsanto Manager commented regarding segregation:

*"The biggest problem we've got at the moment is that our name is mud because we are perceived to have caused this problem."*⁶¹

If GM crops are released commercially in any Australian state, the market perception is that all produce is GM unless it is proven to be non-GM.

GM sensitive markets demand a guarantee of no GM yet no industry is claiming that GM and non-GM canola can be segregated to meet this zero detectable tolerance of GM.

To address segregation details, the Grain Research Development Corporation (GRDC) prepared a \$3.65m report titled “Delivering market choice with GM canola”⁶². It has been widely promoted as the blueprint for allowing GM and non-GM choice but very few are aware of the detail.

The protocols were designed to accept contamination rather than prevent it and details the industry (seed companies and storage and handlers) exempting themselves from any liability and placing all responsibility for costs and liabilities onto the non-GM farmers. Non-GM farmers were not invited in the preparation of the “industry endorsed” protocols for coexistence.

Despite promises of “rigorous requirements”, the GM grower is only required to respect a distance of 5 metres from a non-GM crop and 400 metres from a foundation seed canola. This places the responsibility on the non-GM farmer to minimise or prevent contamination if a neighbouring crop is GM. In line with industry self management plans, Monsanto’s crop management plan recommends that non-GM farmers adopt

*“Appropriate management strategies” as communicated by the supply chain for the specified product.”*⁶²

Unfortunately the “appropriate management strategy” required by markets, is to prove that all GM contamination has been prevented. There is no attempt to prevent contamination in the protocols.

⁶¹ Policy influences on Technology: Chemicals, Biotechnology and Seeds TSER program, European Commission. By Joanna Chataway (Centre for Technology Strategy. UK) and Joyce Tait (Scottish Universities Policy Research and Advice Network UK). October 2000. Based on interviews with Monsanto managers.

⁶² GRDC “Delivering Market choice with GM canola.”

<http://www.croplifeaustralia.org.au/files/Delivering%20Market%20Choice%20with%20GM%20canola%20-%20FINAL.pdf>

⁶² 2008 Crop Management Plan for Roundup Ready Canola. http://www.monsanto.com.au/pdf/rrc_cmp08.pdf

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The protocol exempts the seed industry from responsibility for GM content in seed. When purchasing seed, Australian farmers no longer get a guarantee of a GM-free status of the seed as it was accepted that 0.5% contamination is to be accepted in non-GM seed. The Australian Seeds Federation Code of Practise has recommended label choice with the following less restricted label being widely adopted:

*“Company X has undertaken due diligence to avoid adventitious (accidental) presence of GM material in this seed lot. However, Company X gives no guarantee that the seed is GM free and can accept no liability arising from the adventitious presence of GM Material”*⁶³

As it is a requirement for non-GM farmers to "ensure the status of their seed prior to planting"⁶⁴, farmers will be required to test their seed prior to planting. The test required would be quantitative PCR testing for the approved GM canola varieties. The estimated cost is \$800-\$1,000/sample and the estimated time is two weeks.

In Canada, 70 certified non-GM seed samples were tested for GM content by the Saskatchewan Research Centre for Agriculture and Agri-food Canada with the object of assessing isolation distance effectiveness. It was calculated that if 0.5% GM contamination was present in canola seed it would equate to 850 GM plants/ha (344 plants/acre). The highest contamination recorded was 7.2% using a 792m buffer zone and the highest contamination level of both traits found (Roundup Ready and Invigor) was 0.69%. Only two of the 14 varieties tested did not have contamination.⁸¹

When marketing the harvested product under the coexistence guidelines, it is recommended by the National Agricultural Commodities Marketing Association (NACMA) and the Australian Oilseeds Federation (AOF) "Grains Industry Common GM declarations" recommended standards, that the documentation accompanying sales state either;

- the commodity is not known to have GM content above 0.9%;
- testing has shown no positive GM test registering above 0.9%; or
- a specialised audited quality assurance program has been followed and the varieties planted were not known to have over 0.9% GM content.

It will be unlikely that GM-sensitive markets would accept these recommended product labels.

As no detectable contamination is accepted in a GM-free label but contamination is accepted by the industry, it will not be possible for farmers to provide a GM-free product. Despite both choice and coexistence being promised by governments and industry, it can not be provided under current coexistence plans.

⁶³ Australian Seed Federation Ltd August 2007 version ASF Code of Practise , "Appendix 2: Information for Seed Labelling Under Clause 13 – Adventitious Presence"

⁶⁴ Executive director of the Australian Oilseeds Federation Rosemary "Strict Protocols Guide Crop Production": Richards May/June 2008 GRDC Groundcover article titled

⁸¹ 'Report on Project entitled Isolation Effectiveness in Canola Pedigree Seed Production' (Downey and Beckie 2000) secured by the Department of Justice for the Saskatchewan Organic Directorate legal case against Monsanto and Bayer Cropscience.

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Alternatively, the Vendor declarations that West Australian farmers sign when delivering their produce to the storage and handler, Cooperative Bulk Handling (CBH) details the requirements for a non-GM product.

The CBH Delivery and Warehousing Terms (1st October 2007) detail the liability of growers:

- *(4.1.10) none of the Grain in a Delivery is a Genetically Modified Organism (unless declared in writing to, and approved in writing by, CBH before the Delivery enters the Site);*
- *(19.10) CBH does not represent, warrant or guarantee that any Grain received, acquired or Outturned for You:*
 - *(19.10.3) is free from the presence, at any level or concentration, of Genetically Modified Organisms.*
 - *(19.11) CBH will not be liable to You for any and all Loss or Damage caused by the negligence, breach or contract, breach of statutory duty or any other legal or equitable obligation of CBH, or otherwise howsoever arising in connection with these Terms from:*
 - *(19.11.3) the presence, in any Grain received or Outturned for You, at any level or concentration of any Genetically Modified Organisms.*
 - *(19.12) You shall indemnify, keep indemnified and hold harmless CBH from any and all Loss or Damage suffered by or claimed from CBH, whether caused by the negligence, breach of contract, breach of statutory duty or any other legal or equitable obligation of CBH, or otherwise howsoever arising in connection with these Terms from:*
 - *(19.12.3) the presence, in any Grain received or Outturned for You, at any level or concentration of any Genetically Modified Organisms.*
 - *(10.1) You agree that You will not effect or attempt to effect a Delivery that contains a Contaminant.*
 - *(10.2) You agree that if a Contaminant is discovered in grain Delivered, or tendered for delivery, by You (whether discovered during sampling, unloading or in storage):*
 - *(10.2.1) You are liable to pay the relevant Contamination Charge; or any loss, costs or damage resulting from the presence of a Contaminant, its removal and/or the downgrading of Grain resulting from a Contaminant making it through into the stack,*

Due to these contractual obligations, it is essential for farmers to know the GM content of their seed prior to delivery to avoid costs and liability that could involve testing, recalling the product, demurrage, contamination clean-up costs, lost markets, downgraded produce and legal actions.

Unfortunately, there is no intention or ability to provide quantitative tests available at the delivery site. It is, therefore, highly unlikely that any farmer would accept these liabilities to market as non-GM.

The first industry notification that non-GM farmers were expected to alter their farming practise in order to continue to supply a non-GM produce was a small paragraph in the May/June 2008 GRDC Groundcover article titled "Strict Protocols Guide Crop Production":

*"Executive director of the Australian Oilseeds Federation Rosemary Richards says that growers wanting to market their grain as non-GM must ensure the status of their seed prior to planting. Also, the grower will need to demonstrate traceability through the supply chain. This could involve procedures such as vendor declaration, monitoring contractors and delivery to storage in compliance with customer requirements."*⁶⁴

Non-GM farmers in NSW and Victoria are yet to realise that they are unable to market as GM-free.

⁶⁴ Executive director of the Australian Oilseeds Federation Rosemary Richards "Strict Protocols Guide Crop Production": Richards May/June 2008 GRDC Groundcover article titled

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The document "Delivering market choice with GM canola" Single Vision Grains Australia 2007 CAN NOT deliver the principles promised in the document.

"The principles underpinning the commercialisation of GM canola are that it will be introduced in a manner that:

- *Maintains or enhances trade in Australian canola*
- *Enables market choice along the supply chain*
- *Is open and transparent*
- *Provides confidence to all stakeholders, particularly to customers, consumers and governments."*

Adoption of the coexistence protocols will deny farmers the ability to market as GM as the costs and liabilities involved are price prohibitive.

Of additional serious concern is the impact of contamination of other grains such as wheat and barley. It is likely that unwanted glyphosate-tolerant volunteers will remain in the paddock to germinate in following crops. This may require further grading of grain to remove canola which could add an expense of up to \$10/tonne for every tonne of cereal. Canada grades their grain on out-turn which removes canola seed prior to export.

It is felt that removing the GM-free option is an aim adopted by GM proponents.

Dale Adolphe of the Canadian Seed Growers Association was quoted as saying:

"It's a hell of a thing to say that the way we win is don't give the consumer a choice, but that might be it."⁶⁵

⁶⁵ Biotech Wins by Giving Consumer No Choice. ADRIAN EWINS The Western Producer 4apr02
<http://www.mindfully.org/GE/GE4/Dale-Adolphe-CSGA4apr04.htm>

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1.13 Patent problems

The unique patent rights cover both the seed and its progeny allowing the patent owner to charge a user fee every year. Farmers are required to sign restrictive contracts prior to planting GM seed. Duncan Currie, international law expert warns farmers that these contracts are “onerous”.⁶⁶ The key clauses of concern include:

- Farmers are unable to replant their own seed
- Monsanto has the right to "inspect, take samples and test all of the grower's owned and/or leased fields and storage bins" and to obtain copies of all operational documents for three years after farmers buy GM canola.
- Monsanto reserves the right to take legal action against any farmers who possess its patented canola without a licensing agreement. If GM canola is found, the farmer must prove whether its presence was intentional or due to inadvertent contamination.
- Liability for payment of Monsanto's legal and attorney fees, including expense incurred in enforcing Monsanto's rights and investigation expenses.
- Land that has previously grown GM canola can not be sold without a Monsanto licensing agreement in place with the new owner.

The conditions are copied from the Australian “2008 Roundup Ready canola grower license and stewardship agreement”:

Marked additional comments by:

(*In Red: Duncan Currie) LLB. (Hons.) LL.M. of Globelaw NZ. Gave “quick notes on agreement.” With the following comment: “I note that the contract is governed by Victoria law, so comments are not intended as legal advice and specific advice should be obtained from Victoria counsel.”

(**In Blue Comments) made by author of report representing concerns of a farmer reading the contract. These are not intended to be legal advice.

“This 2008 Roundup Ready Canola Grower License and Stewardship Agreement (Agreement) is entered into between you (“Grower”) and Monsanto Australia Limited ABN (“Monsanto”). This Agreement grants Grower a limited license to use canola seed that contains a Monsanto proprietary gene conferring tolerance to glyphosate, the active ingredient in Roundup brand agricultural herbicides, which is marketed by Monsanto and/or its licensees under the brand name “Roundup Ready canola” (the “Monsanto Technologies”). This Agreement also contains Grower’s stewardship responsibilities and requirements associated with Roundup Ready canola.

Grower agrees:

- 1.1 To acquire Roundup Ready canola only from a Technology Service Provider licensed by Monsanto to sell Roundup Ready canola.*
- 1.2 To use Roundup Ready canola solely for planting a single commercial crop and only during the 2008 calendar year and not to save any crop produced from Roundup Ready canola for planting in any subsequent year.*

(**Comment: The seed purchased can only be planted for one crop and not saved. Every year, new seed must be purchased as no seed can be replanted. Every year a different contract can be drawn up with different terms and conditions.)

- 1.3 Not to: (i) plant any seeds produced from Roundup Ready canola without Monsanto’s prior written consent; (ii) supply seed produced from Roundup Ready canola to any other person or entity (other than to a Monsanto licensed seed company) for planting; or (iii) transfer any seed containing Monsanto Technologies to any other person or entity for planting.*

⁶⁶ Concerns about 'onerous' clauses in GM crop contract By Oliver Perkins Canberra Times, 25 September 2008 <http://www.canberratimes.com.au/news/local/news/general/concerns-about-onerous-clauses-in-gm-crop-contract/1282158.aspx>

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1.4 To pay (as directed by Monsanto) all technology and stewardship fees due to Monsanto and any royalties due to Monsanto that are set forth in a separate Technology User Agreement (TUA) with Monsanto.

1.5 When purchasing Roundup Ready canola, to sign and comply with a Monsanto approved TUA, which obligates the Grower to deliver all grain produced from Roundup Ready canola only to an approved grain handler and to pay the then-applicable per tonne technology fee for such grain for such crop year. Grower understands and agrees that an Accreditation course in Roundup Ready canola must be attended and passed prior to signing a TUA.

(Comment:** Canola seed produced in 2008 can only be supplied to a Monsanto-approved grain handler and the \$10.20 per tonne technology fee will be deducted from the farmers final canola payments and forwarded to Monsanto by the grain handler.)

1.6 To read and strictly comply with the Canola Crop Management Plan ("CMP"), which is incorporated into and is a part of this Agreement, and to abide by and be bound by the terms of the most recent CMP as it may be amended from time to time.

(*Comment from Duncan Currie "1.6 This clause incorporates the 'Canola Crop Management Plan' (CMP), which "may be amended from time to time." Thus the farmer is bound legally to comply with a CMP, which s/he may well not have read and which may change, almost certainly without his or her input. The consequences of this can include damages and legal costs under Clause 8.")

1.7 To promptly notify Monsanto of any failure to comply with the CMP.

(Comment:** Part of the CMP requirement (page 7) "It is essential to monitor and manage the appearance of volunteer canola in both crop and non-crop situations. The primary aim of volunteer management should be to limit the spatial and temporal distribution of Roundup Ready canola by preventing pollen movement and seed set in years subsequent to growing of the crop." If however, a GM farmer is unable to manage pollen or seed movement, this would be "failure to comply with the CMP". What are the consequences?)

1.8 To plant Roundup Ready canola only within the states of Victoria and New South Wales. Grower understands that as of 1 March 2008, certain restrictions around planting and grain management of Roundup Ready canola exist in other Australian states and territories.

1.9 To accept and continue the obligations of this Agreement on any new land purchased or leased by Grower that has Roundup Ready canola planted on it by a previous owner or possessor of the land; and to notify in writing purchasers or lessees of the land owned by Grower that has Roundup Ready canola planted on it that the Roundup Ready canola is subject to this Agreement and they must have or obtain their own Roundup Ready canola Grower License and Stewardship Agreement.

(*Comment from Duncan Currie 1.9 This clause requires the farmer to 'accept and continue the obligations of this agreement on any new land purchased or leased by Grower that has Roundup Ready canola planted on it by a previous owner or possessor of the land.' This means the farmer could be liable for previous breaches, actions or liability by the previous owner or possessor. For instance, the land could have caused contamination of other farms, or there could be volunteer RR plants on the land unknown to the Grower.

It also requires the Grower to "notify in writing purchasers or lessees of land owned by Grower that has Roundup ready canola planted on it that the Roundup Ready canola is subject to this agreement and they must have or obtain their own Roundup Ready canola Grower License and Stewardship Agreement."

This may be a serious impediment to selling or leasing the land, as other purchasers or lessees may be loath to assume the liabilities of the land and the agreement. This clause also needs to be read in light of clause 5, which prevents the grower from assigning rights to anyone else without the prior written consent of Monsanto. In other words, the obligations but not the rights can be assigned.)

1.10 To use on Roundup Ready canola crops only Roundup Ready Herbicide or other non-selective herbicides authorized by APVMA for use on Roundup Ready canola crops. Use of any selective herbicide labeled for the same crop without the Roundup Ready gene is not restricted by this Agreement. MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES WHICH ARE AUTHORIZED BY APVMA FOR USE ON ROUNDUP READY CANOLA CROP(S). MONSANTO SPECIFICALLY DISCLAIMS ALL

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RESPONSIBILITY FOR THE USE OF THESE PRODUCTS ON ROUNDUP READY CANOLA CROP(S). GROWER WILL NOT MAKE ANY CLAIM AGAINST MONSANTO OR ANY COMPANY RELATED TO MONSANTO IN RELATIONS TO THE USE OF SUCH PRODUCTS AND WILL DIRECT ALL QUESTIONS AND COMPLAINTS ARISING FROM THE USE OF SUCH PRODUCTS TO THE MANUFACTURERS AND/OR MARKETERS THEREOF.

(Comment:** To date, the APVMA has only registered Monsanto's glyphosate "Roundup Ready" for use on Roundup Ready canola. Despite cheaper glyphosate being available, only Monsanto's Roundup Ready glyphosate can be used.)

1.11 *To implement the Resistance Management Plan as specified in the applicable sections of the most recent CMP.*

1.12 *To plant Roundup Ready canola for seed production, if and only if, Grower has entered into a valid, written Roundup Ready canola seed production agreement with a seed company that is licensed by Monsanto to produce Roundup Ready canola. Grower must either physically deliver all Roundup Ready canola seed to that licensed seed Company or must sell or use as commodity grain all of the Roundup Ready canola seed produced pursuant to a seed production agreement. Grower shall NOT plant any Roundup Ready canola seed Grower has produced or use, or allow others to use such seed for crop breeding, research, or generation of herbicide registration data.*

(Comment:** This clause prevents any independent trials being carried out to assess agronomics, environmental or health research on this crop.)

1.13 *To inform Monsanto if Grower becomes aware of any unintended or adverse effects of the use of Roundup Ready canola pertaining to the health or safety of people or the environment.*

1.14 *To comply with all reasonable directions and instructions given by Monsanto in relation to the use of Roundup Ready canola.*

1.15 *To comply with all applicable laws and regulations relating to the use of Roundup Ready canola, including all applicable regulatory requirements of the Australian Pesticides & Veterinary Medicines Authority (APVMA) and the Office of the Gene Technology Regulator (OGTR).*

1.16 *For purposes of monitoring Grower's compliance with this Agreement, during the term of this Agreement and for three years following the purchase of Roundup Ready canola, Grower grants Monsanto the right to inspect, take samples, and test all of the grower's owned and/or leased fields and storage bins and to supply Monsanto upon request a list of all locations planted with the Roundup Ready canola by or on behalf of Grower and to allow Monsanto to examine and copy any records and receipts that could be relevant to Grower's performance of this Agreement, including but not limited to crop management records, crop insurance claim documentation, and dealer/retailer and grain handler invoices for seed and chemical transactions or any other records that could be relevant to Growers performance of this Agreement.*

(*Comment from Duncan Currie: 1.16 This clause grants Monsanto the right to inspect, take samples and test all of the grower's owned and/or leased fields and storage bins, as well as requires the grower to supply Monsanto a list of all locations planted, and to allow Monsanto to examine and copy records. In practical terms, this would give Monsanto the right to come on the farm and take samples -- and note that the grower may have to pay for the inspectors under clause 8.)

2. **GROWER RECEIVES FROM MONSANTO:**

2.1 *A limited use license to purchase and plant Roundup Ready canola in the 2008 calendar year and to apply Roundup Ready Herbicide and other non-selective herbicides authorized by APVMA for use on Roundup Ready canola crops. Monsanto retains ownership of the Monsanto Technologies including the genes (for example, the Roundup Ready gene) and the gene technologies incorporated in Roundup Ready canola. Grower receives the right to use Roundup Ready canola subject to the conditions specified in this Agreement.*

(Comment:** If Monsanto retains ownership of the Roundup Ready genes which can not be removed from the crop, it falls to reason that Monsanto owns the crop and its progeny and therefore can dictate the terms of use and the sale of the crop in a closed loop system.)

2.2 *Grower's license to purchase and plant Roundup Ready canola is conditional upon Monsanto's receipt and acceptance of a Monsanto-approved TUA, signed by Grower on or before 15 July 2008,*

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which accurately reflects Grower's purchases and specific paddock planting intentions of Roundup Ready canola by or on behalf of the Grower for 2008, and payment by Grower of all technology and stewardship fees for Roundup Ready canola when due.

- 2.3 Monsanto's Technologies and their method of use are protected under one or more of the following Australian patents; Nos 626473,655197,655945,712453 and 2002230899 and are also the subject of pending Australian patent Nos 2006222670 and 2007200557, Grower agrees that the said patents are and remain the sole property of Monsanto, Monsanto Technology LLC or Monsanto Company LLC, and Grower shall not in any way (directly or indirectly) question, challenge or dispute the ownership or validity thereof. Monsanto licenses the Grower, under applicable patents owned or licensed by Monsanto, to use Roundup Ready canola subject to the conditions listed in this Agreement. This license does not authorize Grower to plant Roundup Ready canola in Australia that has been purchased in another country or plant Roundup Ready canola seed in another country that has been purchased in Australia. Grower is not authorized to transfer Roundup Ready canola to anyone outside of Australia.

(**Comment: Growers need to be aware that they can not directly or indirectly question, challenge or dispute the ownership or validity of the patent.)

3. GROWER UNDERSTANDS

- 3.1 When planting Roundup Ready canola, Grower must Implement the Resistance Management Plan (RMP) in accordance with the guidelines specified in the most recent CMP. Monsanto may revoke Grower's limited use license to use Roundup Ready canola if Grower fails to strictly follow the RMP required by this Agreement.
- 3.2 Crop Stewardship & Specialty Crops: Grower acknowledges the matters set out in the section on Coexistence and Identify Preservation in the CMP in relation to crop stewardship and considerations for production of identify preserved crops.
- 3.3 Roundup Ready Canola Trait Performance: All Roundup Ready canola varieties have been screened for the presence of the appropriate protein and have passed that screening prior to commercial sale. A small number of these varieties may infrequently demonstrate variable levels of performance in fields.

(**Comment: This appears to be a disclaimer as a small number of glyphosate tolerant canola plants may be killed by glyphosate as they will not have sufficient tolerance to it.)

- 3.4 Confidential information: Grower acknowledges that the Monsanto Technologies include information which is confidential to Monsanto and agrees not to use or disclose such information other than strictly in accordance with this Agreement.

4. PERSONAL INFORMATION AND PRIVACY:

- 4.1 When In this clause, "Personal information" has the same meaning given in the Privacy Act (1988) Cth.
- 4.2 Any Personal information provided by or on behalf of Grower to Monsanto or any Monsanto authorized Technology Service Provider, seed company, grain handler or crusher ("the Participants") in connection with this Agreement or the TUA (including Personal information about the Grower or any individual whos is not the Grower) ("Information") may be used by and shared between the Participants to perform and administer this Agreement and the TUA and for any other purposes for which the Grower has otherwise consented. The Information may also be disclosed to regulatory authorities (including the APVMA and OGTR) and may be used and disclosed as otherwise required or authorized by or under applicable laws, regulations or standards. Monsanto may use and disclose the Information for planning, research, product development and strategic and marketing purposes in relation to Monsanto's products and services and may disclose the information to third party providers (such as IT providers and marketing agencies) for these purposes. If Grower is a natural person, Grower consents to the collection, use and disclosure of Personal Information about the Grower by the Participants in accordance with this clause.
- 4.3 Individuals who wish to access the Personal information that Monsanto holds about them can contact Monsanto.

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4.4 Grower warrants that where any Personal information of an individual (who is not Grower) is provided to any Participant, the individual has read this clause and agreed to these terms.

5. GENERAL TERMS:

Grower's rights may not be assigned or transferred to anyone else without the prior written consent of Monsanto. If Grower's rights are assigned or transferred with Monsanto's consent or by operation of law, this Agreement is binding on the person or entity receiving the transferred rights. If any provision of this Agreement is determined to be void or unenforceable, that provision will be severed from this Agreement and the remaining provisions shall remain in full force and effect. Grower acknowledges that Grower has received a copy of the CMP. To obtain additional copies of the CMP, contact Monsanto at PO Box 6051, St Kilda Rd Central, Melbourne, 8008. This agreement constitutes the entire Agreement between the parties, and supersedes all prior writings or oral agreements.

6. GOVERNING LAW AND FORUM SELECTION

This Agreement and the parties relationship shall be governed by the laws of the State of Victoria (without regard to the choice of law rules) and the laws of Australia applicable in Victoria. THE PARTIES SUBMIT TO THE NON-EXCLUSIVE JURISDICTION OF THE COURTS OF VICTORIA AND COURTS COMPETENT TO DETERMINE APPEALS FROM THOSE COURTS FOR ALL CLAIMS AND DISPUTES ARISING OUT OF OR CONNECTED IN ANY WAY WITH THIS AGREEMENT AND OR THE USE OF THE ROUNDUP READY CANOLA SEED OR THE MONSANTO TECHNOLOGIES. THE PARTIES WAIVE ANY OBJECTION WHICH THEY MAY NOW OR IN THE FUTURE HAVE TO THE VENUE OF ANY PROCEEDINGS, AND ANY CLAIM THEY MAY NOW OR IN THE FUTURE HAVE THAT ANY PROCEEDINGS HAVE BEEN BROUGHT IN AN INCONVENIENT FORUM, IF THAT VENUE IS ONE OF THE AFOREMENTIONED COURTS.

7. TERM AND TERMINATION

Once effective, this Agreement will remain in effect until 31 December 2008 unless terminated earlier in accordance with the Agreement. Upon expiry or termination of this Agreement, Grower's limited-use license will terminate immediately; Grower's responsibilities and the other terms of this agreement shall survive. The expiry or termination of this Agreement will have immediate effect for a breach of this Agreement or the TUA by Grower, or if Grower is or becomes bankrupt, insolvent or otherwise unable to pay its debts as and when they fall due, or if Grower sells or grants rights to a third party to possess or control any land on which the paddocks identified in the accompanying TUA are located.

(*Comment: This clause would concern farmers as despite the contract terminating at the end of the year, seed is impossible to completely eradicate from the farm but the responsibility for the farmer remains to remove all GM seed. As clause 1.16 grants Monsanto the right to inspect, take samples and test all of the grower's paddocks and storage bins, it is quite reasonable to suspect that Monsanto could charge a user fee if contamination is found.)

8. MONSANTO'S REMEDIES

If grower breaches this Agreement, in addition to Monsanto's other remedies, Grower shall not be entitled to obtain a future limited use license from Monsanto unless Monsanto provides Grower with specific written notice expressly recognizing the prior breach and prior termination of the limited-use license and expressly granting and/or reissuing the limited-use license previously obtained (and terminated) pursuant to this Agreement and/or to have infringed one or more of the Australian patents listed in this Agreement or in the CMP or on any Roundup Ready canola bag label or labeling. Grower agrees that, among other things, Monsanto will be entitled to (i) a permanent injunction enjoining Grower from making, using, selling, or offering for sale Roundup Ready canola; (ii) the payment by Grower to Monsanto of damages for patent infringement and breach of contract to the full extent authorized by law; and (iii) the payment by Grower to Monsanto of the legal and attorney fees incurred by Monsanto and the licensed Monsanto Roundup Ready canola provider(s) (including but not limited to disbursements and other expenses incurred in enforcing rights under this Agreement and expenses incurred in the investigation of the breach of this Agreement and/or infringement of one or more of the applicable patents).

(*Comment from Duncan Currie: 8. Monsanto's remedies. This provision is particularly onerous. It includes liability for payment of legal and attorney fees incurred by Monsanto as well as the canola provider(s), and including expenses incurred in enforcing Monsanto's rights and investigation expenses.

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This alone can give rise to considerable liability for cost for the farmer and can be used as a significant inducement to settle claims and take action requested by Monsanto. There are stories of Monsanto taking similar action in farms in Canada.)

9. NOTICE REQUIREMENT AND LIMITATION OF WARRANTIES AND LIABILITY

Grower agrees that as a condition precedent to Grower or any other person with an interest in Grower's asserting any claim, action, or dispute against Monsanto and/or any seller of Roundup Ready canola regarding performance or non-performance of Roundup Ready canola, Grower must provide Monsanto a written, prompt, and timely notice (regarding performance or non-performance of the Roundup Ready canola) within sufficient time to allow an in-field inspection of the crop(s) about which any controversy, claim, action, or dispute is being asserted. The notice will be timely only if it is delivered 15 days or less after the Grower first observes the issue(s) regarding performance or non-performance of the Roundup Ready canola. The notice shall include a statement setting forth the nature of the claim, and the name of the Roundup Ready canola hybrid or variety. Monsanto warrants that the Roundup Ready canola and Monsanto Technologies licensed hereunder will perform as set forth in the CMP when used in accordance with directions. This warranty applies only to Roundup Ready canola that has been purchased from Monsanto and seed companies licensed by Monsanto or the seed company's authorized dealers or distributors. EXCEPT FOR THE EXPRESS WARRANTIES IN THE LIMITED WARRANTY SET FORTH ABOVE, MONSANTO MAKES NO OTHER WARRANTIES OF ANY KIND, AND DISCLAIMS ALL OTHER WARRANTIES, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE TO THE FULL EXTENT PERMITTED BY LAW. MONSANTO'S LIABILITY TO SELLER FOR ANY AND ALL LOSSES, INJURY OR DAMAGES ARISING DIRECTLY OR INDIRECTLY FROM THE USE OR HANDLING OF SEED CONTAINING ANY MONSANTO TECHNOLOGIES (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, PRODUCT LIABILITY, STRICT LIABILITY, TORT, OR OTHERWISE) IS LIMITED TO THE PRICE PAID BY THE GROWER FOR THE QUANTITY OF THE SEED INVOLVED OR, AT THE ELECTION OF MONSANTO OR THE SEED SELLER, THE REPLACEMENT OF THE SEED. IN NO EVENT SHALL MONSANTO OR ANY SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES FOR ANY LOSS OF PROFITS. GROWER AGREES TO INDEMNIFY MONSANTO, ITS DIRECTORS, OFFICERS AND EMPLOYEES AND TO HOLD THEM HARMLESS FROM ANY AND ALL LOSSES, DAMAGES, COSTS, CLAIMS, EXPENSES AND CHARGES OF ANY NATURE WHATSOEVER WHICH MONSANTO INCURS AS A RESULT OF THE BREACH OF THE TERMS OF THIS AGREEMENT OR THE TUA OR ANY NEGLIGENCE OF GROWER INCLUDING ANY ACT, NEGLIGENCE OR DEFAULT OF ITS OFFICERS, EMPLOYEES AND CONTRACTORS."

(*Comment from Duncan Currie: 9. Limitations: This limits Monsanto's liability to the price paid for the seed. It even excludes warranties of merchantability and fitness for purpose 'to the full extent permitted by law', so could exclude a claim for lost profits due to crop failure due in whole or part to the seed or its characteristics. It also excludes 'incidental, consequential, special or punitive damage or any loss of profits'. So for incident such as contamination of neighbouring land, giving rise to liability to a neighbouring farm, Monsanto leaves the farmer carrying the loss, even if it is due in whole or part to the seed or its characteristics.)

- END CONTRACT -

Monsanto has a requirement for Australian farmers to control unwanted contamination and this may extend to farmers that do not want contamination. For farmers wishing to cut GM canola for hay due to adverse seasonal conditions, it is a requirement for farmers to inform Monsanto of the name, address and contract details of the buyer of the hay. Buyers must be advised that the GM hay could contain viable seed and that it is their responsibility to treat unwanted volunteers accordingly.⁶⁷

The International Union for the Protection of New Varieties of Plants (UPOV) Agreement⁶⁸ was introduced

⁶⁷ Letter from Tony May, Monsanto (18.9.08) Re "Confirming your grain estimate & NGR details for Roundup Ready canola."

⁶⁸ International Union for the Protection of New Varieties of Plants (UPOV) http://www.upov.org/index_en.html

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internationally to adopt a system of royalty collection for new plant varieties while retaining the right of farmers to replant their own seed. Non-GM plant varieties are legally protected under Plant Breeder Rights (PBR) while GM plants have an additional protection under patent law. As Monsanto's patented GM gene is added to a non-GM variety, it could be registered under both the PBR system and the patent system. Farmers currently pay a GRDC levy, pay for seed, and pay an end point royalty for the non-GM variety.

Under contract, Monsanto has opted to charge Australian grain growers in a similar End Point Royalty system granted to PBR varieties.⁶⁹

Australia is signatory to the updated UPOV 91 treaty allowing the collection of royalties to be obtained from harvested seed produced from the seed planted in an "end-point royalty" plan. The United States and Canada refused to sign the UPOV 91 treaty and they pay these fees when buying seed. If US or Canadian farmers avoid paying their royalty fee by replanting seed, the onus of proof is on the GM company to pursue the farmer in court. 2009 will be the first time that Canada will pay for GM canola by an end-point-royalty system integrated to new contracts. This could involve the GM company testing seed and any positive result could result in a deduction of royalty. This reverses the onus of proof as the farmer must prove they had no intention to plant GM if a positive test is found.

GM patent owners such as Monsanto will have the right to collect their patent fee from a farmer's grain payment. This may lead to the Australian farmer being required to sue the company over any disputes, rather than the company suing the farmer. No limit of contamination is set to trigger this royalty deduction which leaves farmers vulnerable to the sensitivity of GM tests. Such tests may trigger a positive result and a reduction of royalties for as low as 0.5% contamination.

In an ironic twist of inadequate legislation, non-GM farmers could be forced to pay a "user fee" for the contamination they are trying to avoid. If this fee is deducted from farmers' payments, the onus of proof will be on the farmer to pursue the GM company in court to recover payments rather than the GM company to sue the farmer.

⁶⁹ pg. 14/15 GRDC Groundcover May-June 2008

Key reference for section: Australian "2008 Roundup Ready canola grower license and stewardship agreement"

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1.14 Pursuit of Patent Royalty Payments:

In countries that have adopted GM, Monsanto has vigorously pursued legal compliance of patent law. The key countries growing GM crops are USA (50.48%), Argentina (16.71%), Brazil (13.12%) and Canada (6.12%) accounting for 86.43% of the GM crops grown.⁷⁰

1. U.S.A (50.48% of global GM crops grown):

A 2007 document prepared by the US Center for Food Safety documented 112 lawsuits in 27 US states involving Monsanto suing farmers for payments for breach of contract. In the Center's opinion, many more farmers settled out of court as they could not afford the time or money to fight Monsanto. This involves a team of private investigators and the installation of a "hot-line" encouraging farmers to do in other farmers.⁷¹

Seed cleaners have also been sued to subpoena information leading to action against farmers and for "encouraging" farmers to breach their contract by supplying the seed grading service that they had provided for decades.⁷²

US, the largest GM crop nation pay significant subsidies to farmers to counter higher costs and lower commodity prices. In 2005, 80% of these subsidies were allocated to soy, cotton and corn (their GM crops) which indicate that taxpayers are paying the additional costs and market loss associated with GM technology.⁷³

Annually, media reports reveal farmers complaining about the increase in costs. Monsanto's fee for GM corn was up 20% in 2008 and projections showing a further increase of 35% in 2009.⁷⁴

Anti-competitive claims have been lodged against Monsanto for manipulating farmers to purchase Monsanto's glyphosate rather than generic glyphosate. To encourage farmers to purchase expensive seeds, Monsanto introduced a "crop protection program" where the Technology user fee would be waived when purchasing new seed if the crop failed within the first 60 days after planting. However, this enticement to lower cropping risk was conditional on the farmer using only Monsanto's glyphosate on their GM crop and for general farm use rather than generic glyphosate. Monsanto was also accused of coercing seed companies to drop alternative chemical resistant GM development and leveraging its seed-trait monopoly power to coerce dealers, distributors and farmers to help Monsanto block competition in the separate herbicide market.⁷⁵

⁷⁰ <http://www.isaaa.org/resources/publications/briefs/37/executivesummary/default.html> ISAAA Brief 37-2007: Executive Summary Global Status of Commercialized Biotech/GM Crops: 2007

⁷¹ Monsanto vs. U.S. Farmers Report. November 2007. Monsanto's lawsuits against American farmers, revealing thousands of investigations, nearly 100 lawsuits and numerous bankruptcies.

<http://www.centerforfoodsafety.org/Monsantovsusfarmersreport.cfm>

⁷² Monsanto, Missouri co-op reach settlement on seed use. St. Louis Post-Dispatch, September 2 2008

<http://www.tradingmarkets.com/.site/news/Stock%20News/1857737/>

⁷³ USDA presentation, Grainsweek Brisbane 2005

⁷⁴ http://www.monsanto.com/pdf/investors/2008/10_07_08.pdf Monsanto's October 2008 Financial statement for investors

⁷⁵ Texas Grain versus Monsanto Case 5:07-cv-00673-OLG Filed 08/10/2007. Pg 33-35

http://www.competitivemarkets.com/index.php?option=com_docman&task=cat_view&gid=27&Itemid=32

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2. Argentina (16.71% of global GM crops grown):

The commercial planting of Monsanto's genetically modified Roundup Ready (RR) soybeans was approved in 1996. Monsanto's patents on RR soybeans was not recognised in Argentina and the company's rights over the GM seeds are limited to the country's Seed Law which allowed replanting of farmer saved seeds (1978 Act of the Convention for the Protection of New Varieties of Plants (UPOV)).

Glyphosate tolerant Roundup Ready soy was widely adopted in Argentina as Monsanto offered credit to cash stricken farmers to buy GM soy seeds and Monsanto's Roundup herbicide while providing farmers with expensive machinery and training to change their operation to large scale direct drilling operations. The weed control offered with minimum till techniques, the cheapness of seed (slightly higher sales price compared to conventional seeds) and the cheap cost of locally produced glyphosate accelerated adoption. Originally Monsanto took no action to recover royalties from illegally traded seed while Argentinian farmers widely adopted GM soy illegally. Seed was also smuggled across the border to neighbouring Brazil, Paraguay and Bolivia where cultivating GM crops was banned.

In 1999, contracts accompanied seed sales requiring farmers to pay US\$2.00 plus tax for each 50-kilo bag of seeds that they save from their harvests for their own use. These contracts opposed the existing Seed law allowing farmers to save their own seed without additional costs but was allowed by government. By 2001, Monsanto started threatening farmers over their "illegal" use of RR seeds and demanded that the Argentine government enforce the law. Until 2001, Monsanto pursued Supreme Court action to obtain patent protection in Argentina but was refused due to a technicality over patent lodgement criteria.

In January, 2004, Monsanto pressured the government by threatening to withdraw its soybean business from Argentina. This immediately led the government to draft a "technology compensation fund" law where Monsanto was to be compensated by a levy up to 0.95% imposed on farmers selling their soybeans to elevators and exporters. Due to conflict from farmers, the proposal was not accepted when presented to government. In August of 2004, Monsanto announced that it would collect royalties from countries importing Argentine soybeans. The "Technology Compensation Fund" was introduced in October, 2004 (45 days after authority approval on the 22nd August 2004). The tax is collected from grain payments and paid to Monsanto by the government.

In June 2005, Miguel Campos, the Agriculture Secretary held a press conference expressing his anger at Monsanto's patent collection process because Monsanto had lodged lawsuits against soy importers. Monsanto accuses the Dutch firm Cefetra, the Danish company Danish Lokale Andel as well as the American global company Cargill of illegally importing from Argentina.^{76*}

Monsanto's annual financial statement for the 2008 fiscal year⁷⁷ stated:

"All Roundup Ready soybean trait acres in Argentina are currently non-paying"

^{76*} References for Argentina:

- GRAIN, "Confronting contamination in Argentina" April 2004
- GRAIN, "Monsanto's royalty grab in Argentina" October 2004 <http://www.grain.org/articles/?id=4>
- http://www.evb.ch/cm_data/Artikel_Monsanto_Soya_Arg-EU_E_final.pdf
- [Harvesting Royalties for Sowing Dissent? Monsanto's Campaign against Argentina's Patent Policy](#) (by Rachel Nellen-Stucky and François Meienberg, Berne Declaration, Oct-2006)

"Seeds of Destruction" F William Engdahl. Pg 185

⁷⁷ http://www.monsanto.com/pdf/investors/2008/2008_biotech_acres.pdf Monsanto's October 2008 Financial statement for investors showing biotech acres. Monsanto published its year-end report on the company's biotech trait acreage for fiscal year 2008. <http://www.monsanto.com/monsanto/layout/investor/company/crop.asp>.

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Farmers however, are currently paying the Argentine government an export soy tax of 36%. Widespread and long-term protests were held in Argentina in 2008 when farmers blocked ports in protest of an attempt to increase the export soy tax to 44.1%. Governments have expressed their widespread concern of the inability to sustain a monoculture of GM soy. Part of this government tax supports farmers that have been displaced from the move from subsistence farms to large broadacre soy farms.

3. Brazil (13.12% of global GM crops grown)

In 2003, Brazil legalised the planting of GM crops and allowed Monsanto to collect royalty payments for GM soy (Provisional Measure 131/2003, Law No.10.814/2003). The government failed to establish a minimum limit of GM contamination required prior to the deduction of royalties, a limit on values or methods of collection.

Brazilian farmers were forced to pay royalties through an agreement struck between Monsanto and certain producer organisations and soybean crushers, cooperatives and exporters. A fee of US\$3.45 to US\$6.90 a tonne was charged when farmers delivered their produce to the elevators (storage and handling companies) and declared that they were growing GM. As a reward, the elevators retained a proportion of Monsanto's fee as a collection fee. If farmers don't declare their soybeans as "GM" the crop was tested leaving them liable to thousands of US dollars in fines and penalties if the tests prove positive.

The deduction of royalty fees was based on the level of positive detection, allowing Monsanto to collect payments from farmers that had not intentionally grown GM. The fee charged was calculated at an annual meeting of unions, representative entities of agriculture, cooperatives and dealers who, in turn, were rewarded by gaining a percentage of the profits collected.

The amount deducted from farmers soy payments in the 2004/2005 harvest was R\$0.60 per 60 kilo bag for the farmer that declared a "GM" product. Those that did not declare they grew GM but were tested positive for GM were charged for the cost of the test and R\$1.50 per 60 kilo bag, in addition to the cost of the test.

The 2005/2006 Monsanto's agreement detailing season costs was published identifying a silence clause for farm leaders. "

The condition is that rural leadership in each State would undertake not to question the charge of 2% on the value of the sale of transgenic soybean that had not paid royalty in the act of planting (the certified soybean would already have a built-in royalty value of R\$ 0.88 per kilo)".^{78*}

It is not unreasonable to assume that the increased adoption rate of 30% in 2005 reported by ISAAA⁷⁹ was far more to do with the inability for farmers to avoid royalty payments rather than farmers being prepared to pay the fees involved.

^{78*} References for Brazil:

- Transgenic Soybean in Brazil : Seminar notes about legislation on planting, sale and Intellectual Property Rights. Authors Lawyers: Joao Carlos Lopes Scalzilli, Joao Pedro De Souza Scalzilli and Lucas Martins Dias. Sep 5, 2005
- <http://www.monsantowatch.org/moduleinterface.php?module=News&id=cntnt01&cntnt01action=detail&cntnt01articleid=37&cntnt01returnid=11>
- Newspaper quote: Ref: "O Estado de S. Paulo", of August 24, 2005, Section C4, Agribusiness
- <http://www.monsantowatch.org/moduleinterface.php?module=News&id=cntnt01&cntnt01action=detail&cntnt01articleid=72&cntnt01returnid=19>
- "Brazil pays off for Monsanto, Seedling <http://www.grain.org/seedling> April 2004.

⁷⁹ International Assessment of Agricultural Science and Technology for Development (IAASTD)<http://www.isaaa.org>

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4. Canada (6.12% of global GM crops grown):

Almost all of the GM canola grown in the world is grown in Canada and they have far different seasonal conditions than many broadacre countries in the world.

Like USA, farmers have been pursued for illegally growing canola seed. Currently the legal action is dependent on the companies discretion and no limit is set for the amount of contamination required to trigger a deduction of royalties. In 2009, Canadian farmers will be paying an end point royalty rather than requiring legal action to pursue farmers growing GM or GM contaminated crops.

At a recent visit to Australia, the vice chairman of the Canadian National Farmers Union, explained that there is little option for non-GM farmers as new non-GM varieties are not available and all seed costs have increased rapidly since GM introduction. There has been an increase in costs of 600% since its introduction and farmers now pay Can \$126/ha for the seed and seed use. Canadian farmers now pay Monsanto an average of 23% of their canola value to use GM canola seed.⁸⁰

There is also little option to sell Canadian canola as GM as attempts to segregate failed and non-GM seed stocks are contaminated.⁸¹

After Canada adopted GM crops, neither their average net farm income nor average yield improved.⁸² In 2002, when net farm income plummeted to well below zero, 7,000 farmers marched in the streets demanding increased subsidies with particular reference to the plight of canola farmers.⁸³

Part of the policy of the Canadian National Farmers Union⁸⁴ :

“While the benefits are questionable, risks and costs are real.”

“Government must hold GM companies accountable for the costs their products create for other farmers and the general public.”

⁸⁰ Canada: C\$126/ha for seed and seed use only \$6/lb seed cost x 6 lb/acre (\$36/acre) + \$15/acre user fee = \$51/acre
Cost = average of 23% of canola value (\$370/t average price/1.5t/ha average yield). 600% increase in cost since GM introduction (1996) (\$1/lb to \$6/lb seed cost)

⁸¹ 'Report on Project entitled Isolation Effectiveness in Canola Pedigree Seed Production' (Downey and Beckie 2000) secured by the Department of Justice for the Saskatchewan Organic Directorate legal case against Monsanto and Bayer Cropscience.

⁸² Statistics provided by Canadian National Farmers Union from Stats Canada and yield data obtained from the United States Department of Agriculture (USDA). Available on request.

⁸³ Ontario farmer <http://www.ontariofarmer.com/yesterday/wednesday/default.html> available at http://www.non-gm-farmers.com/news_details.asp?ID=2070

⁸⁴ National Farmers Union Policy <http://www.nfu.ca/gmfood-ban.htm>

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1.15 GM Wheat an industry threat

GM wheat has been promoted in W.A. but the reason no GM wheat is grown commercially anywhere in the world is because markets strongly reject GM food that requires labelling as GM. Unlike canola, GM wheat requires a GM label as it contains GM DNA in the final product. Wheat is also used as a staple food for humans rather than stock food and there is serious consumer unrest regarding GM wheat being introduced.

Some weeds are frustratingly easy to grow, hardy, drought tolerant, salt tolerant and frost tolerant but weeds are not grown as a crop because weeds are not marketable. The same principle applies to GM wheat, if markets do not want it, no matter how good it is, farmers should not grow it as farmers grow a crop to sell it and can't profit from it unless they do.

Unfortunately, if any farmer grew GM wheat commercially in West Australia, the market perception would be that WA wheat is GM unless it is proven not to be GM. The process of proving there is no GM wheat in non-GM wheat is not possible yet and, even if testing improved, it would still be far too difficult and too expensive. Therefore all farmers will be forced to sell as GM and will be unable to market their wheat.

If GM wheat is commercialised in WA, the West Australian wheat market could be destroyed overnight.

The drive for this united campaign to promote GM wheat appears to stem from a local company that is trying to establish a business producing GM frost tolerant wheat. Details from the company prospectus show the alliances required, the money and time to produce a variety through GM.

The Directors of the new GM Company, Green Blueprint International (GBI), are Ian Edwards, Bill Crabtree and John Stone with Mr Crabtree the sole shareholder. GBI have the exclusive license to use the genes (IP and patents owned by Australian Centre for Plant Functional Genomics (ACPFPG) identified in antarctic hair grass and aim to produce frost tolerant wheat. Their research partner and technology provider is Molecular Plant Breeding Pty Ltd which is Co-located with the Victorian Department of Primary Industries and they are the exclusive commercialisation agent for Molecular Plant Breeding Cooperative Research Centre. A sublicense can be granted to the University of Adelaide, the University of Melbourne, University of Queensland and the Victorian DPI. GBI required a strategic commercial partner and the recent prospectus called for further investors (aimed at farmers).⁸⁵

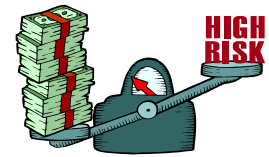
It was expected to take 10-20 years to develop this GM frost tolerant wheat but even if this was possible, with the number of commercial partners involved, it is easy to predict that any benefit derived from GM frost tolerant wheat will be negated by the cost. If the strategic commercial partner is Monsanto, Monsanto alone has an extremely expensive fee calculation that negates the financial benefit for farmers⁸⁶. GBI would also pay a royalty of 20% of proceeds from sales to ACPFG and all players would like their commission.

Even if consumer concerns wane, and even if this GM wheat variety proves a success, it would likely be a price-prohibitive crop for Australian farmers who manage to grow crops despite frosts. GM wheat would be far more beneficial to countries such as Russia and Ukraine that are currently unable to grow crops due to freezing conditions. This opening up of huge areas of rich soil could create a glut of wheat to the market, which would certainly have an adverse impact on wheat price and Australian farmers.

It is of concern that GM promoter Bill Crabtree was paid to write the GM policy for the WA Liberal Party.

⁸⁵ http://www.no-till.com.au/pdfs/GreenBlueprint/GrnBluePrint_Prospectus-Sep07-9.pdf

⁸⁶ http://www.monsanto.com/pdf/investors/2008/10_07_08.pdf Monsanto's October 2008 Financial statement for investors



1.16 Risk management required

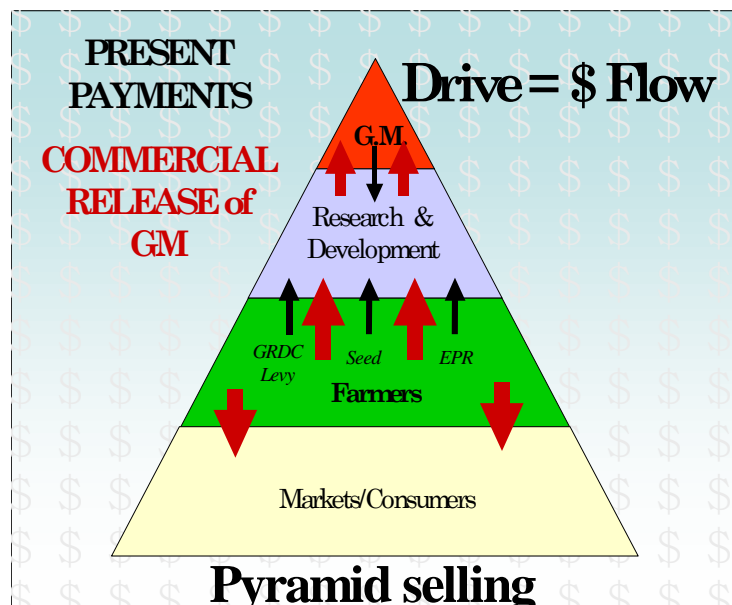
For the immediate 2009 growing season independent performance trials and analysis of economics is required. Trials are proposed for around 5,000ha but these are not trials as there is no ability to reverse the release of GM. The minimal data required from independent performance trials on less than 10ha:

Aim: Comparison of the weed control advantage of herbicide tolerant canola's:

- The highest yielding varieties of TT and RR should be used and planted at the recommended time to give best performance (season permitting);
- If possible, the same variety should also be used as conventional, TT and RR as a comparison with and without incorporating the altered traits;
- A standard hybrid, TT hybrid and RR hybrid should be included;
- The recommended chemical control should be used in all varieties, including glyphosate knockdown in non-GM varieties and trifluralin application in heavy grass situations;
- Light, average and heavy weed control situations should be compared requiring both grass and broadleaf control as the benefit of herbicide tolerant varieties is weed control;
- Swathing and harvesting must be done when the variety is ready, not at a time that will disadvantage a particular variety;
- Adequate distance between plots should be maintained to prevent chemical drift (particularly to prevent the downhill conversion of glyphosate);
- No handpicking of weeds should be permitted (eg. radish picking).
- Independent economic analysis, including the additional costs of GM, should be prepared to enable farmers to make informed decisions.

Farmers pay well for plant breeding now through compulsory GRDC levies, high seed payments and an end point royalty system of payment on produce grown from new varieties. The introduction of GM crops can only increase costs but these costs can not be passed to consumers, as markets are either refusing to buy GM produce or pay less for them. The GM industry is trying to remove choice to ensure the increase in costs is passed to both consumers and farmers.

While the GM battle continues, farmers will be in an unsustainable funding vacuum.



Farmers have been pushing for a strict liability regime to ensure the GM industry is responsible for compensating for any economic loss caused to non-GM farmers, but this has been refused. Non-GM farmers have been told that common law will address liability concerns, meaning non-GM farmers suing GM farmers under Tort Law.

Legal recourse should not be designed to pit non-GM farmers against GM farmers.

GM Crops: Risks and Risk Management Required

Risk management and law reform must include:

- Independent performance trials to assess agronomic and economic claims of GM canola;
- Fair risk management to ensure non-GM farmers are not liable for the economic loss caused by GM crops;
- A requirement that a minimum limit of contamination (eg 90%) is proven prior to deduction of royalties for GM contamination;
- Investigation into any anti-competitive practises adopted by the seed industry;
- A full investigation to the behind-the-scenes corporate alliances and conditions formed with public plant breeders;
- No restriction to be imposed on farmers or gardeners rights to replant non-GM seeds and no restriction of new varieties available in an alternate non-GM form (without an unwanted GM gene).
- Strict liability legislation to ensure the GM Company is liable for containing their product and any economic loss caused by their inability to do so.
- Independent health testing to allay consumer fears or to identify and address any problems found.
- Support for improved GM labelling allowing consumers a choice to avoid GM if desired; and
- Compulsory public registration of GM growers.

If Monsanto achieves the goal to “own a patent on 100% of the seeds planted”, what will this mean to competition to the Monsanto/Cargill supply chain alliance? As farmers sign contracts to use the patented seed of GM crops, Monsanto technically own the seed and its produce and can dictate the delivery terms of produce and therefore secure food for their supply chain. Farmers effectively become contract growers for a supply chain. If competition is unable to source crops, they will be unable to supply food and competition is therefore effectively eliminated. If the Monsanto/Cargill supply chain owns the global food supply, what will be the outcome for consumers and farmers regarding price and choice?

It is not unreasonable to insist on the truth and fair risk management to ensure those not wishing to take the risk associated with GM crops are not adversely affected by them.

GM Crops: Risks and Risk Management Required

1.17 Author profile: Julie Newman

- National Spokesperson and website manager for the Network of Concerned Farmers

Past and current Agripolitical positions include:

- Member of W.A. Government Ministerial G.M.O. Industry Reference Group
- Senior Vice President W.A. Farmers Federation Grains Council *
- Member of Policy council for Grains Council of Australia (GCA) *
- W.A. representative on Grains Council of Australia (GCA) Seeds subcommittee *
- W.A. Farmers Grains Council portfolio holder for G.R.D.C. and plant breeding *
- W.A. Farmers representative on W.A. Seed Industry Working Group *
- Representative for Lake Grace/Corrigin zone at W.A. Farmers annual GM policy meetings *
- Inaugural executive of W.A. Grain Group

* These positions were terminated when I was unconstitutionally sacked just prior to WA Farmers GM policy changing from a cautious policy to a pro-GM policy. An e-mail motion (breaching constitutional requirements for motions) was distributed from WAFarmers Grains Council CEO to Grains Council members. It claimed incorrectly that I had breached media protocol for not notifying the media officer prior to making a media statement supporting W.A. Farmers grains council policy. I was given no right of reply prior to the motion being passed and providing the written evidence of official notification to the media officer did not reverse the motion.

Robert and Julie Newman:

- Farm: 10,000ha south of Newdegate W.A. Currently conventionally growing canola, wheat, barley, lupins, oats and peas. Produce export hay. Run approx. 10,000 sheep for wool and meat.
- Seed Works: One of the largest seed grading factories in W.A. processing farmers' grain and clover seed prior to planting. **
- Contract crop spraying and agronomy business, 1979-1998

**We do not currently sell canola seed but as there are very few registered seed grading factories in W.A., if farmers lose the right to replant their own seed, registered seed grading factories would likely be processing far more certified seed at a far higher cost and selling all farmers seed.

